Research Hotspots and Evolution Paths Analysis of the Coordinated Development Between Ecological Environment and Economy Based on Citespace

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ABSTRACT

Taking 300 pieces of literature on the coordinated development of ecological environment and economy in the WOS kernel database from 1992 to 2021 as the research object, this article uses Citespace visualization software to conduct scientific quantitative analysis and visualization research on the research status, cooperation network, research hotspots and frontiers, and evolution context in this field. Combined with the key literature system, it also sorts out the research hotspots and evolution paths in the coordinated development of ecological environment and economy in WOS. Through research, it has been found that the trend of changes in the number of publications in this field from 1992 to 2021 is significantly related to national coordinated development policies and the real economic environment. Although many scholars and institutions in this research field conduct academic research from different perspectives, there is a lack of close cooperation between scholars and research institutions. In the future, scholars and institutions need to strengthen the sharing of academic resources to enhance their comprehensive strength in the field. The research topics and methods in this field are diverse, and on the basis of summarizing qualitative theoretical research, quantitative analysis methods are mainly used to conduct coupling and coordination research. In the future, research in this field urgently needs to be continuously deepened and expanded in areas such as energy efficiency, new urbanization, and the construction of comprehensive evaluation models.

Keywords: *Ecological environment, Economy, Coordinated development, Knowledge graph, Citespace.*

1. INTRODUCTION

After the Industrial Revolution, while the world economy rapidly expands, the ecological environment is also rapidly deteriorating. Foreign scholars have taken the lead in researching the relationship between ecological environment and economic development, and have achieved rich academic achievements in both theoretical and empirical research fields, represented by Resource Scarcity Theory and Environment Kuznets Curve. Since proposing the sustainable development goals, China has deeply implemented the Scientific Outlook on Development and actively promoted the process of high-quality economic development. The 20th CPC National Congress proposed that green development is the necessary path for harmonious coexistence between humans and nature, and economic development should be coordinated to promote carbon drop, pollution reduction, green expansion, and growth. The key to achieving sustainable development lies in coordinating the contradiction between ecological environment and economic development, and the realization of sustainable development has important practical significance for building a beautiful China. For this purpose, this article collects 300 pieces of literature from the WOS kernel database, and uses Citespace visualization software to draw important knowledge graphs. Based on this, it systematically sorts out relevant literature and delves into the knowledge foundation and research hotspot evolution trends in the field of coordinated development of ecological environment and economy.

2. RESEARCH METHODS AND DATA SOURCES

Citespace is a visualization analysis software that emerged against the background of Scientometrics and data mining technology, showing the relationship between literature reasonably and clearly through the graph of scientific knowledge. Starting from the four dimensions of the number of publications, authors, institutions, and keywords, Citespace software generates a time distribution graph of the number of publications, a co-occurrence network graph of authors and institutions, a co-occurrence graph of keywords, a clustering graph of keywords, and a timeline graph of keywords, intuitively presenting research hotspots and trends in the field of coordinated development of ecological environment and economy.

The research data is sourced from the WOS kernel database. The theme of literature search is set as "ecological environment" and "economic development", with "coordination" as the theme word for literature retrieval. To ensure the effectiveness of the literature, the source journals are limited to SCI, SSCI, CPCI, and EI, resulting in a total of 300 pieces of core periodical literature. It then exports the literature in plain text format and uses Citespace6.1.R6 to process the literature data for drawing relevant knowledge graphs.

3. BIBLIOMETRIC ANALYSIS

Based on the above research data and search themes, a comprehensive exploration of the literature in the field was conducted. The analysis of temporal trends in the number of publications and the network of research authors and institutional collaborations provides strong support for an in-depth understanding of the coordination development between ecological environment and economic.

3.1 Time Distribution Characteristics

By observing the number of literature output that fluctuates over time, it can preliminarily judge the research progress in this discipline, so as to help researchers observe the hotspot outbreak period of this discipline by combining domain knowledge and policy fluctuations. The distribution of literature output in the research field of coordinated development of ecological environment and economy in the kernel database of WOS from 1992 to 2021 is shown in "Figure 1". From 1992 to 2007, the research field received relatively low attention and had a relatively small number of related publications. A total of 6 articles were published over the past 16 years, with an average annual number of publications of less than 1; from 2008 to 2018, the attention level of this research field gradually increased, with a total of 111 articles published in the past 11 years, with an average annual number of publications of 10, and the reason for this was that after the global financial crisis in 2008, countries around the world changed their economic development concepts to overcome difficulties and revitalize their economies, and influenced by the real environment and national policies, the academic community shifted its focus to studying the coordinated development of economic development and other related fields such as environmental protection, in order to promote long-term economic stability; from 2019 to 2021, the attention of this research field showed explosive growth, with a total of 183 articles published over the past three years, with an average annual number of publications of 61. The number of articles published that year doubled compared to last year. The 2019 UN Conference on the Environment and Development proposed the urgent need for global cooperation to address severe environmental challenges while achieving sustainable consumption and production. In recent years, the concept of low-carbon environmental protection and green sustainability has become a social consensus.

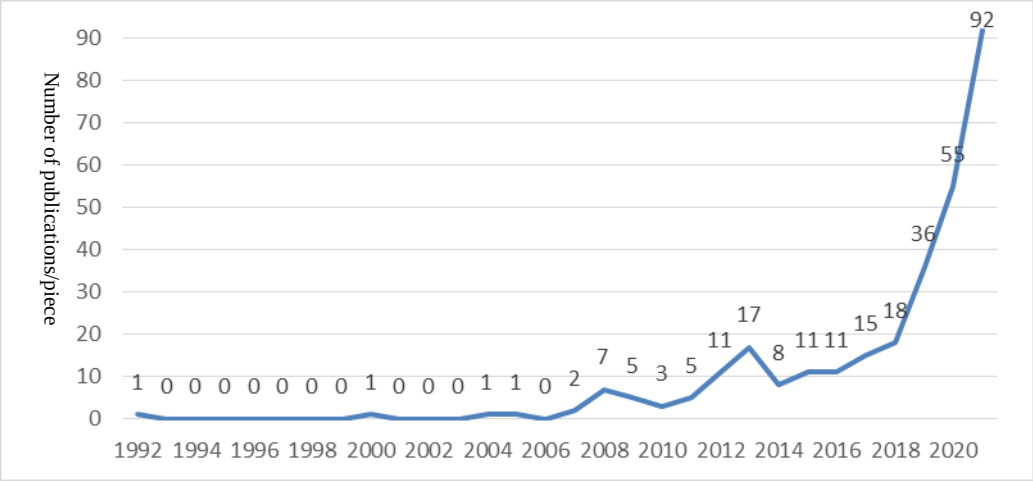

Figure 1 Number of publications in the research field of coordinated development of WOS environment and economy from 1992 to 2021.

3.2 Statistical Analysis of Authors

After processing literature data through Citespace and drawing a graph of scholar collaboration networks, the influential core scholars in the field can be determined by the font size of the nodes. At the same time, the degree of cooperation between scholars can be determined by observing the thickness of the connections between scholars. The drawing result is shown in "Figure 2".

The number of nodes N represents the total number of authors of literature retrieval, the number of connections E represents the number of collaborations between authors, and the density D represents the density of collaborative networks among scholars. According to "Figure 2", it can be seen that the number of nodes N=941, the number of connections E=1634, and the collaborative network density D=0.0037, indicating that overall, the cooperation between scholars in this field is not strong. From the perspective of cooperative relationships, most scholars are in the independent research stage, and some scholars are closely connected, forming independent cooperative teams. Most of the cooperative teams are of 2-3 people, while a few have a larger number of people. Based on the number of publications and the level of academic exchange, it can be confirmed that the multi-scholar collaborative team with Zhang Li as the core, the three-person collaborative team of Shi Peiji, Liu Haimeng and Liu Hailong, and the two-person collaborative team of Zhang Wei and Zhou Qian are important academic groups in this field.

Figure 2 Network Graph of Scholar Cooperation in the research field of coordinated development of WOS environment and economy from 1992 to 2021.

According to the Price equation N=0.749∗ (Nmax)1/2, the core author group in the field can be determined, where Nmax refers to the highest yielding author's number of publications in the field and N is the lower limit of the core author's number of publications. After calculation, it can be obtained that N=1.26, which means that authors who have published 2 or more articles can be considered as the core authors in the research field, with a total of 37 people. The top 10 core authors are shown in "Table 1".

According to statistics, a total of 80 articles are published by 37 core authors in this research field, accounting for 26.67% of the total number of literature retrieval. The important basis for determining whether a certain field has formed a discipline high-yield author group in academic exchanges is that the total number of publications by core authors accounts for 50% or more of the total number of literature in the field [1]. From this, it can be concluded that the research field is still in the initial stage of development and has not yet fully formed a high-yield author group. According to literature review, scholars such as Zhang Wei, Zhang Fei, Zhang Lihui, Shi Peiji, Ariken, and Muhadaisi have all published 3 articles, indicating that the above authors have a high academic influence in this field. Among them, scholars Zhang Hao, Shi Peiji, and Zhang Wei entered this field earlier, mainly exploring issues related to urban governance and land planning from the perspective of coordinated development of ecological environment and economy [1] [2] [3]; scholars Zhang Lihui and Yang Wenfeng entered this field relatively late, respectively conducting research on how energy efficiency affects the coordinated development of the ecological environment and economy [4] [5], and how the carrying capacity of Tibet's resources and environment affects local economic development [6]; scholars Zhang Fei, Ariken Muhadaisi, Vyshnevska O, and Ma Lin have published a high number of papers in recent years. Among them, scholars Zhang Fei and Ariken Muhadaisi have closely collaborated, mainly focusing on the coupling and coordination analysis of urbanization and ecological environment in different regions of China [7] [8] [9]; scholar Vyshnevska O studies global strategies for sustainable development based on the international situation of globalization [10] [11]; scholar Ma Lin mainly studies the construction of a coordinated development pattern between urban ecological environment and economy in China [12] [13].

Table 1. Top 10 core authors of number of publications in the research field of WOS environment and economy coordinated development from 1992 to 2021

Ranking/position	Author	Number of publications/piece	Year of publication
1	Zhang Wei	3	2014
2	Zhang Fei	3	2020
3	Zhang Lihui	3	2016
4	Shi Peiji	3	2013
5	Ariken Muhadaisi	3	2020
6	Zhang Hao	3	2008
7	Vyshnevska O	2	2020
8	Yang Wenfeng	2	2016
9	Ma Lin	2	2020
10	Shao Chaofeng	2	2019

3.3 Statistical Analysis of Institutions

Next, it uses Citespace to process the retrieved literature data and draw a network graph of institutional cooperation in the research field. The literature output of a research institution to some extent reflects its scientific research strength and the close cooperation between research institutions demonstrates the cohesion of the academic field, as shown in "Figure 3". The results show that, in general, research institutions in this field show the characteristics of "large dispersion and small aggregation". Most institutions conduct research independently and a few institutions are closely linked, forming a core cooperation team centered on the Chinese Academy of Social Sciences.

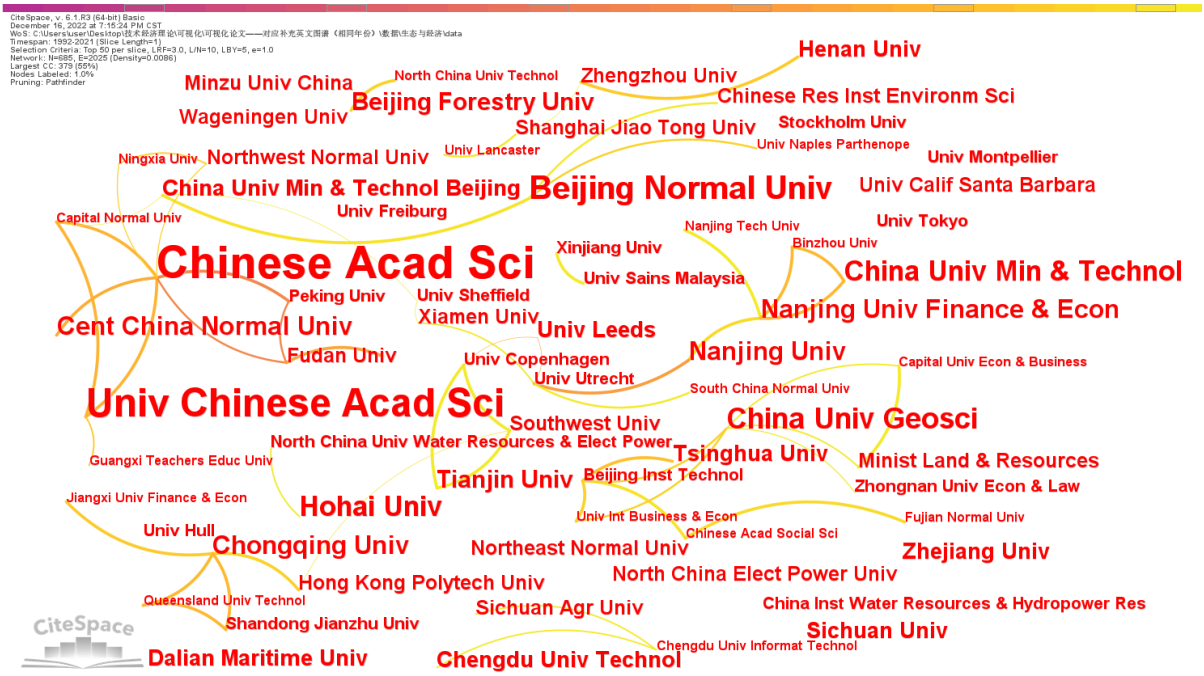

Figure 3 Institution network graph of WOS environment and economic coordinated development research field from 1992 to 2021.

At the same time, the top 10 institutions in terms of number of publications are selected and analyzed in a "Table 2", with a total of 141 articles published, accounting for 47% of the total number

of publications. Among them, the Chinese Academy of Sciences and the University of Chinese Academy of Sciences have the highest number of publications and cooperative relationships. At the same time, Beijing Normal University and China University of Geosciences have also formed close institutional cooperation groups centered around themselves. Overall, academic resources in this field are mainly concentrated in universities, and cooperation between Chinese universities is relatively close, while most foreign universities conduct independent research. In the future, the academic resources of universities need to be shared with professional scientific research institutes to promote the practical development of professional institutions in the field. The coordinated development of environment and economy is a global key issue, and various institutions in China and foreign countries need to work together, concentrate academic research efforts, and conduct research based on solving common problems and combining specific national conditions to promote sustainable development in this research field.

Table 2. Top 10 institutions of number of publications in the research field of WOS environment and economy coordinated development from 1992 to 2021

Serial number	Institution	Number of publications/piece
1	Chinese Acad Sci (Chinese Academy of Sciences)	47
2	Univ Chinese Acad Sci (University of Chinese Academy of Sciences)	25
3	Beijing Normal Univ (Beijing Normal University)	13
4	China Univ Geosci (China University of Geosciences)	10
5	China Univ Min & Technol (China University of Mining and Technology)	9
6	Hohai Univ (Hohai University)	9
7	Nanjing Univ (Nanjing University)	7
8	Chongqing Univ (Chongqing University)	7
9	Cent China Normal Univ (Central China Normal University)	7
10	Nanjing Univ Finance & Econ (Business School, Nanjing University)	7

4. ANALYSIS OF RESEARCH HOTSPOT

In addition to bibliometric analysis, Citespace can also be used to explore academic hotspots through keyword co-occurrence and clustering mapping to gain a more comprehensive and in-depth understanding of the development of the research field.

4.1 Keyword Co-occurrence Network

Next, this study analyzes the co-occurrence graph of keywords to help explore academic hotspots in the field and explore potential connections between various hotspot research words. After using Citespace to process and retrieve literature data and draw a keyword co-occurrence graph, as shown in "Figure 4", a total of 387 nodes and 1,192 connections are generated, with a network density of 0.016. According to "Figure 4", the hot keywords in this research field from 1992 to 2021 are "ecosystem service, model, urbanization, ecological environment, sustainable development, system, impact, management, environment", etc.

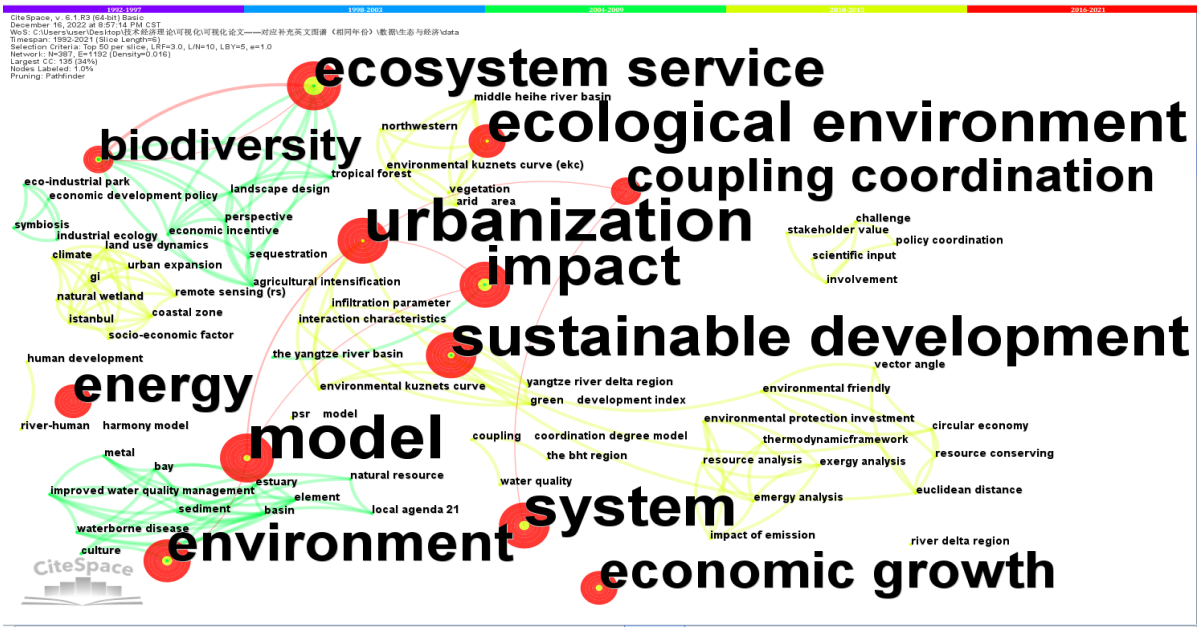

Figure 4 Keyword graph in the research field of coordinated development of WOS environment and economy from 1992 to 2021.

It then uses the frequency of keyword occurrence as the sorting basis and selects the keywords with the highest frequency ranking in the top 20, as shown in "Table 3". After analyzing "Table 3", it can be seen that research on the relationship between environment and economy, the establishment of coupling system and model between ecological environment and economic development, the coupling degree between ecological environment and economic development, and the impact of urbanization on the coordinated development of economy and environment have received lots of attention.

Table 3. High-frequency keywords of WOS environment and economic coordinated development research field from 1992 to 2021

Serial number	Keyword	Frequency of occurrence	Year
1	model	59	2014
2	urbanization	55	2015
3	ecological environment	46	2015
4	sustainable development	43	2008
5	system	42	2012
6	impact	38	2008
7	management	36	2007
8	environment	33	2008
9	ecosystem service	32	2007
10	China	31	2014
11	growth	28	2011
12	energy	28	2016
13	economic growth	27	2014
14	sustainability	26	2012
15	city	24	2016
16	economic development	24	2015
17	eco environment	24	2015
18	indicator	23	2015
19	policy	21	2015
20	coupling coordination degree	21	2016

4.2 Keyword Clustering Analysis

It is based on the keyword co-occurrence graph and uses Citespace to perform keyword clustering analysis, resulting in a keyword clustering graph (see "Figure 5"). A clustering module value Q greater than 0.3 indicates a reasonable clustering result, while an average contour value S greater than 0.5 indicates a clear clustering structure. According to "Figure 5", the clustering module value Q in the clustering graph is 0.7917, and the average contour value S is 0.9362, indicating good clustering results. According to "Figure 5", the research field of coordinated development of WOS environment and economy mainly includes 7 keyword clusters: #0 poverty, #1 coupling coordination, #2 agricultural ecological environment, #3 yellow river basin, #4 ecological environment, #5 coupling coordination degree, and #6 closed loop supply chain. After exporting the analysis data, a keyword clustering table can be obtained (see "Table 4"), where the S values of clusters #1 to #6 are between 0.849 and 0.964, all greater than 0.7, indicating ideal clustering performance.

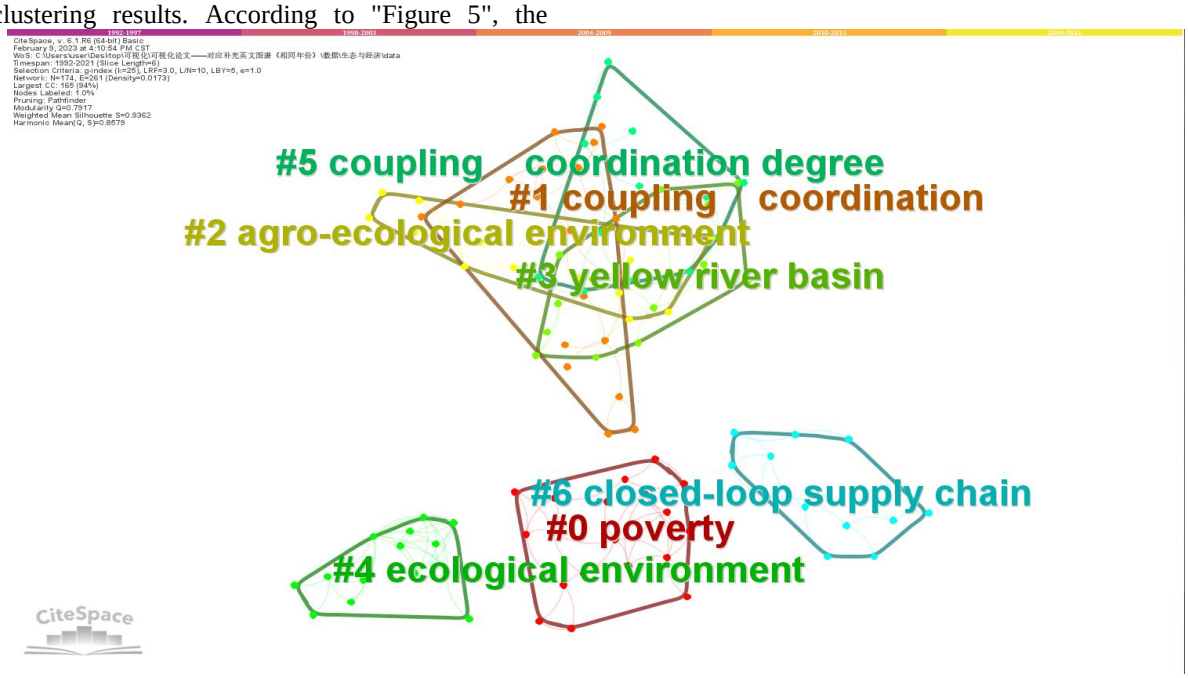

Figure 5 Keyword clustering graph in the research field of coordinated development of WOS environment and economy from 1992 to 2021.

Table 4. Keyword clustering table

Clustering	Quantity	S value	Average year	Keyword
#0	19	0.904	2017	poverty, land use transition, rapid urbanization region, land ecological security evaluation, catastrophe theory
#1	19	0.964	2019	coupling coordination, integrated assessment, panel, innovation, middle route of the south-north water transfer project
#2	15	0.89	2018	agro-ecological environment, driving factors, agricultural economy, new urbanization, coastal reclamation
#3	14	0.849	2019	yellow river basin, improved ccd model, ecological view, multi-dimensional benefits, emergy analysis theory
#4	14	0.997	2015	ecological environment, economic development, sustainable development, carrying capacity, land use change
#5	13	0.955	2018	coupling coordination degree, indicator system, fuzzy comprehensive evaluation method, multisource rs data, data integration
#6	12	0.958	2019	closed-loop supply chain, utilization efficiency, development zoning, multiple uses, mangrove forests policies

By combining the high-frequency keyword table and keyword clustering graphs, it can be concluded that the hot topics in the field of WOS environmental and economic coordinated development research are focused on the coupling and coordination of ecological environment and economic development, model establishment, system evaluation, urbanization research, watershed research, agricultural ecological benefits, and other aspects.

4.2.1 Research on the Coupling and Coordination of Ecological Environment and Economic Development

A large number of authoritative research results in the field have confirmed that there is a coupling and coordinated relationship between the ecological environment and economic development, which is interdependent and mutually influencing. By studying the coupling and coordination relationship between ecological environment and economic development, it can deeply explore the reasons for the low coupling and coordination between regional ecological environment and economic development, and act appropriately to promote the coordinated development of the two, thereby promoting high-quality economic development. The key research contents mainly focus on the following two categories: qualitative research on the interaction mechanism between ecological environment and economic development, and quantitative research on the construction of evaluation index system for the coupling and coordination relationship. First, about qualitative research, Jorgenson, Andrew K, et al. [14] analyzed how globalization affects the interaction between ecological environment and economic development by comparing the changes in the decoupling index between economic development and ecological environment of countries around the world from 1960 to 2005; Gao, Hongmei [15] studied economic policies from the perspective of ecological environment protection, analyzed how economic development positively affects ecological protection, and proposed economic policies based on ecological environment protection — ecological economic policies. Second, regarding quantitative research, Liu, Ke et al. [16] used 36 cities along the Yellow River Basin as research samples to construct an indicator system for economic development and ecological environment evaluation. In their study, the regression model was used to calculate index values and analyze factors affecting coupling coordination and spatiotemporal heterogeneity; Du Hongwei [17] used Qinhuangdao Port as a research sample to construct a comprehensive evaluation index system that includes two sub indicators: economic level and ecological environment, and calculated its static and dynamic coordinated development degree.

4.2.2 Establishment of a Coupling Model and Systematic Evaluation Method for Ecological Environment and Economic Development

At present, the measurement methods of coupling degree in the field of coordinated development of ecological environment and economy in WOS mainly include geographical spatiotemporal weighting method [3], coefficient of variation [18] and elastic coefficient [19], gray relative analysis method[20], system dynamics method [21], expandable stochastic environmental impact assessment model (STIRPAT) [22], data envelopment analysis [23], fuzzy analytic hierarchy process [24], structural equation modeling [25], etc. Shao, Bo [26] built the evaluation model of natural ecological environment and economic development benefits under the "Internet plus" open platform based on the tide of the information age; Wang, Jiayang et al. [27] used 11 prefecture-level cities in Jiangxi Province as examples to construct a three-dimensional system evaluation model of social economy-ecology-environment to evaluate the carrying capacity of regional ecological environment; Shi, Tao et al. [3] used a geographic spatiotemporal weighting regression model to explore the coupling coordination and spatiotemporal heterogeneity between economic development and ecological environment in 17 tropical and subtropical regions of China; Ke, Zhengang et al. [21] used Wuhan as an example to construct a dynamic model of the coupling and coordination system between ecological environment and economic development using system dynamics.

4.2.3 Research on the Synergy Between Urbanization and Ecological Environment from the Perspective of Coordinated Development of Ecological Environment and Economy

The effective assistance for achieving regional sustainable development is the coupling and coordination of urbanization development and ecological environment. Yang, Chun et al. [28]

took Chongqing as an example and selected appropriate indicators from a spatiotemporal perspective. Their study found that economic urbanization and green ecological level respectively contribute the most to the urbanization system and geological ecological environment; Ariken Muhadaisi et al. [7] used multi-source rs data and a coupling coordination degree model to comprehensively evaluate the coupling and coordination relationship between urbanization and ecological environment in the Yanqi Basin from 2000 to 2018; Wang Zhenbo et al. [29] used a coupling coordination degree model to calculate the coordination degree value of urbanization and ecological environment composite system, and studied the main factors affecting the synergistic effect of urbanization and ecological environment in Beijing-Tianjin-Hebei Region.

4.2.4 Research on Watersheds from the Perspective of Coordinated Development Between Ecological Environment and Economy

The coupling and coordination relationship between watershed ecological environment and economic development is a hot topic in sustainable development research. Combining social and economic development issues with water environment issues can accurately and comprehensively reflect the dynamic characteristics of the basin, maintain the ecological security of the basin, and guide the comprehensive development of the basin. Zhao Yanhong et al. [30] took the Yellow River Basin as the research object, constructed an indicator system for economic development and ecological status of the Yellow River Basin based on economic, energy consumption, ecology, and water resource data, and calculated the indicator data to analyze the spatiotemporal evolution trend of the coupling and coordination between economic development and ecological environment in the Yellow River Basin; Wang, Yiqi et al. [31] constructed a complex system dynamics model to evaluate and study the dynamic changes in social and economic development and ecological environment in the Wei River Basin.

4.2.5 Research on the Agricultural Ecology in the Coordinated Development of Ecological Environment and Economy

The protection of agricultural ecological environment is a major strategic task for achieving sustainable development of agricultural economy. Studying the coupling and coordination relationship between agricultural ecological environment and economic development has important guiding significance for countries around the world to formulate sustainable agricultural economic development models that are in line with their national conditions. Sun, Yuan et al. [32] compared and studied the ecological, economic, and social indicators of five Ginkgo biloba agroforestry systems in subtropical regions, and found that implementing sustainable agricultural and forestry systems can simultaneously achieve regional economic development and environmental protection; Cai, Jie et al. [33] studied the spatiotemporal differentiation characteristics and main influencing factors of the coupling and coordination relationship between new urbanization development and agricultural ecological environment based on the region of China.

5. ANALYSIS OF THE EVOLUTION PATH OF RESEARCH

Using Citespace to draw a keyword timeline graph for literature retrieval, the evolution path and development trend of research hotspots in the field of WOS ecological environment and economic coordinated development can be obtained [10] (see "Figure 6").

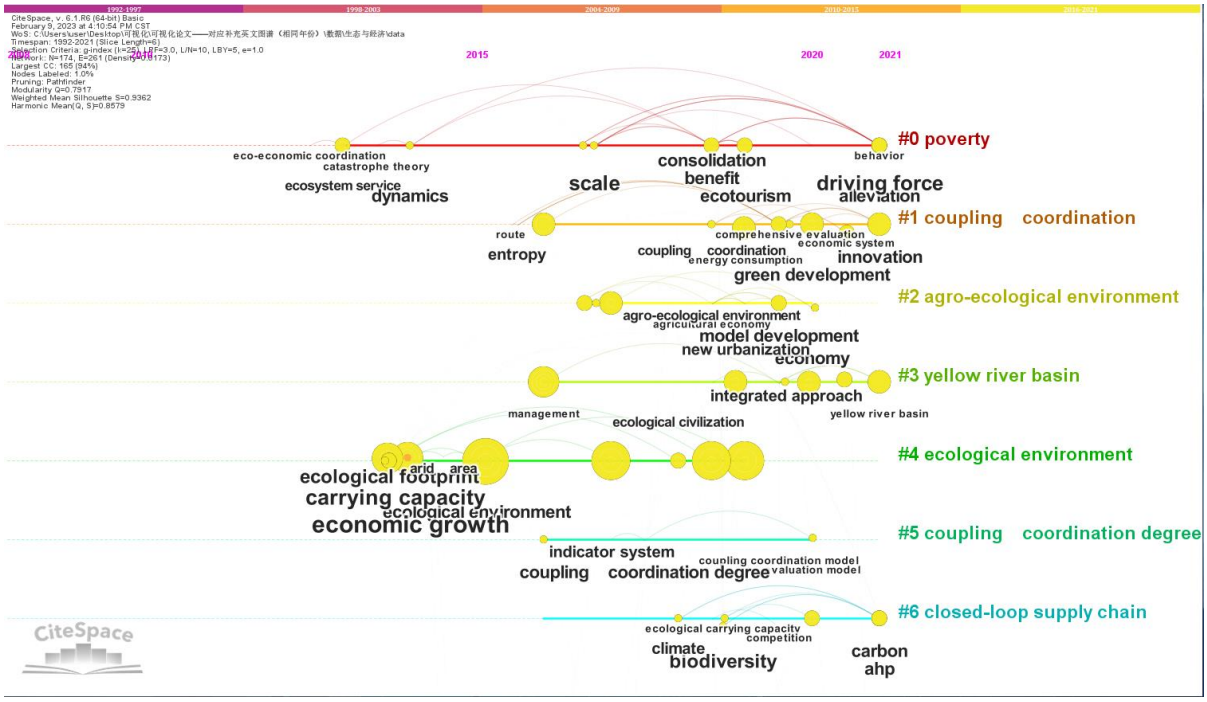

Figure 6 Keyword timeline graph in the research field of coordinated development of WOS environment and economy from 1992 to 2021.

According to the literature review in "Figure 6", it can be seen that from 1992 to 2021, the research on the coordinated development of WOS ecological environment and economy roughly went through the following three stages:

- The embryonic stage (1992-2012): At this stage, the number of relevant literature in the research field of WOS ecological environment and economic coordinated development was too small to form important keyword nodes that can be clearly displayed on the timeline graph.
- The development period (2013-2016): The hot research keywords at this stage were "ecosystem service", "catastrophe theory", "eco-economic coordination", "ecological footprint", "carrying capacity", "indicator system", etc. There were dense connections between high-frequency keywords. At this stage, key research scholars Shi Peiji, Zhang Wei, Zhang Lihui, and Yang Wenfeng respectively constructed specific evaluation indicator systems on the value of ecological service systems [34], regional energy carrying capacity [35], urban comprehensive development intensity-ecological environment pressure [36], and ecological industry development [6] under the premise of coordinated development of ecological environment and economy.
- The maturity period (2017-2021): The research hot keywords in this stage were "ecotourism", "comprehensive evaluation", "driving force", "energy consumption", "innovation", "agro-ecological environment", "model development", "new urbanization", "integrated approach", "yellow river basin", "coupling coordination model", "climate", "biodiversity", etc. The research hotspots in this stage included the evaluation methods and models for the coupling and coordination of ecological environment and economic development, the coordination of watershed development and ecological environment, the coordination of urbanization development and ecological environment, and the coordination of agricultural economic development and ecological environment.

Overall, in the early stages of research in this field, scholars focused on the construction of a indicator system for the coupling and coordination of ecological environment and economic development, exploring the main factors affecting the coupling degree and proposing appropriate solutions for key influencing factors. With the gradual deepening of research, scholars' focus has shifted to diversified research methods and coupling models. The research areas are mostly concentrated in major watersheds, important

development cities, and areas with fragile agricultural ecological environments. Through empirical analysis methods, the coupling and coordination degree is quantitatively measured, and guidance is provided for the coordinated development of ecological environment and economy based on the measurement results.

6. CONCLUSION

This article focuses on the research on the coordinated development of WOS ecological environment and economy. Through Citespace6.1R6 software, a scientific quantitative analysis and visualization study is conducted on 300 articles included in the WOS kernel database from 1992 to 2021. The time distribution, author composition, institutional distribution, research hotspots, and research evolution of the research field are systematically sorted out, and the following conclusions are obtained: ① From the time distribution of number of publications, the period from 1992 to 2007 was the embryonic stage, and the research field received relatively low attention, with an average annual number of publications of less than 1; the period from 2008 to 2018 was the exploration stage, and the research field gradually gained attention, with an average annual number of publications of 10; the period from 2019 to 2021 was the development stage, and the attention in this research field has shown explosive growth, with an average annual number of publications of 61. ② From the perspective of authors and research institutions, scholars mostly conduct independent research, lack close cooperation, and have not yet fully formed a high-yield author group. The distribution of institutions is relatively scattered, and academic resources in this field are mainly concentrated in universities, with close cooperation between Chinese universities. Most foreign universities conduct independent research, and there is less cooperation between universities and institutions. In order to enhance the comprehensive strength of the field research, it is necessary to strengthen the sharing of academic resources among scholars and institutions in the future. ③ From the perspective of keyword co-occurrence and keyword clustering analysis, the hot topics in this research field mainly focus on the coupling and coordination of ecological environment and economic development, the establishment of coupling models and analysis of evaluation methods, urbanization research, watershed research, agricultural ecological benefits, and other aspects. ④ From the perspective of research trends, keywords such as "comprehensive evaluation", "energy consumption", "agro-ecological environment", "model development", "new urbanization", "integrated approach", "yellow river basin", and "coupling coordination model" have received much attention in the field in recent years. The future expansion and deepening of research in this field needs to focus on the evaluation methods and models for the coupling and coordination of ecological environment and economic development, the coordination of watershed development and ecological environment, the coordination of urbanization development and ecological environment, and the coordination of agricultural economic development and ecological environment. By systematically sorting out the cutting-edge hotspots and evolution context of WOS ecological environment and economic coordinated development research, it has important reference significance for future theoretical research and practical exploration in this field, which can promote the deepening and development of field research.

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