

Links and Interaction of Villagers and Rural Revitalization: A Bibliometric Review

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Abstract

Purpose – The dominant role of villagers in rural revitalization has been emphasized in recent years. This review addresses the following three research questions: First, how did the research topics of villagers in rural vitalization evolve? Second, what are the similarities and differences between the research development stages? Third, where are the hotspots for villagers and rural vitalization?

Design/methodology/approach – Using bibliometric analysis and CiteSpace software, this study systematically combed 2339 relevant literature to investigate the evolution and hotspots of research on the links and interaction of villagers and rural revitalization in the Web of Science (WOS) core collection.

Findings – The study found that this research area has evolved into four stages, where conservation, management, and policy were mentioned the most. The topics of urban-rural difference studies, social innovation, bottom-up projects, community organizations, and sustainable development are hotspots and have more potential for future research.

Practical implications – Based on the Web of Science core collection, this systematic review helps researchers determine the potential focus of villagers in rural development. The systematic review also provides a reference for practical revitalization strategies.

Originality/value – This comprehensive systematic analysis through bibliometrics makes it possible to handle vast amounts of scientific literature data, which is beneficial for finding hidden development patterns, thus providing a basis for future research and practical decision-making.

Keywords: Rural revitalization, Villagers, Review paper, Bibliometrics, Visualization, CiteSpace.

1. Introduction

Rural revitalization is critical in regional sustainable development, as it integrates the urban-rural gap (Ma et al., 2022; Ostad-Ali-Askar, Su, & Liu, 2018). However, due to the growing urbanization process, widespread brain drains from rural areas have emerged worldwide. This population loss has led to labor shortages in rural areas and conflicts in regional development (Alados et al., 2014; Li et al., 2021; Ma ., 2022). To reverse this situation, many countries, such as Europe, Japan, and China, have gradually emphasized the importance of rural development and launched a series of rural revitalization campaigns (Mukai & Fujikura, 2015). Rural revitalization has also received extensive academic attention involving rural planning (Li et al., 2016), rural governance, sustainable development (López-Penabad et al., 2022), villager participation (Jiří et al., 2022), rural stakeholders (Furmankiewicz et al., 2021), policies (Wang, 2020), traditional village preservation (Shen & Chou, 2022), rural tourism (Dai et al., 2021), and others.

Rural revitalization cannot be achieved without the participation of the villagers (Courades & Brosei, 2018). Villagers are the prior beneficiaries of rural development and the essential builders, defenders, and monitors. In contrast, when this group perceives those benefits are unequally distributed or damaged beyond their tolerance limits, they may revolt and greatly hinder rural development (Loperena, 2017; Menconi, Grohmann, & Mancinelli, 2017).

Given the crucial role of rural residents, the importance of communities and villagers has been emphasized in various rural development programmes (Liu & Li, 2017). The LEADER program (Liaison Entre Actions de Développement Rural) in Europe uses social innovation to support rural development. It also encourages the participation of residents in identity activities to reach development plans (Nordberg, Mariussen, & Virkkala, 2020). In Asia, the One Village One Product (OVOP) in Japan designs specific local plans and promotes the active participation of local people in economic activities (Shen & Chou, 2022). China launched its rural revitalization strategy in 2017. In the early stages of this strategy, the government is likely to be in a leading position, proposing related policies and providing financial support. In subsequent stages, enterprises use policy support to promote development in rural areas. As the rural revitalization strategy continues to advance and develop, in the last stage, rural residents actively participate in production and improve the employment structure, which strengthens sustainable rural development (Nordberg, Mariussen, & Virkkala, 2020).

The dominant role of residents is constantly emphasized in policies related to rural revitalization. How have the links and interactions of residents in rural revitalization evolved? What are the current research hotspots and future research trends? It is difficult to accurately identify these issues, which is crucial for understanding research hotspots and

supporting practical applications. Based on the Web of Science core collection, this study adopted a bibliometric analysis to visualize resident-related research in rural revitalization. Through "co-occurrence keyword clustering," "burst detection", and landmark literature, this systematic review tries to reveal the research topics of rural revitalization and residents in different historical periods, as well as the future trends, to help researchers determine the potential focus of rural development and provide a reference for practical revitalization strategies and paths. The research questions were as follows:

RQ1. How did the research topics on villagers in rural vitalization evolve?

RQ2. What are the similarities and differences between research development stages?

RQ3. Where are the hotspots of villagers and rural vitalization?

2. Research Design

2.1 Research Hypothesis

High-quality scientific literature has a higher degree of disciplinary representation in the Web of Science core database because it is subject to rigorous peer review and critical scrutiny by publishing journals (Jin et al., 2018; Li & Chen, 2018). In recent years, with the rapid increase in the volume of scientific literature, bibliometric analysis software and visualization techniques have emerged, which make it possible to handle vast amounts of scientific literature data (Ali, 2019; Chen, 2012; Zhang, Yan & Du, 2015). Traditional literature reviews cannot provide a complete picture of the research field, as they are limited by the literature volume and the bias of researchers' subjective selection of literature (Leung, Sun & Bai, 2017). This comprehensive systematic analysis through bibliometrics is beneficial for identifying hidden development patterns, thus providing a basis for future research and practical decision-making (Chen, 2006).

2.2 Research Methods

Bibliometric analysis can quantitatively analyze all literature published in a specific research field (Si et al., 2019). Through matrix and integration of bibliometrics, evolution and hotspots can be explored in a panoramic way of review (Ali, 2019). Visualization analysis transforms information into graphics to reveal embedded information (Chen, 2012). The scientific knowledge mapping method combines bibliometrics and visualization technology to graphically describe scientific knowledge's evolution process and structure (Hou, Yang & Chen, 2018; Kipper et al., 2021). Similarly, this realizes the transformation of literature review research from subjective and fragmented to objective and panoramic (Linnenluecke, Marrone & Singh, 2020).

The Java-based CiteSpace software developed by Chaomei Chen, professor at the School of Information Science and Technology at Drexel University, is a visualization software suitable for multivariate, time-sharing, and dynamic analyses of complex networks (Chen, 2006). In CiteSpace, the scientific knowledge map of a research field can be represented by various types of networks: based on co-citation analysis theory and pathfinding network algorithms, the evolutionary paths and turning points can be explored (Chen, 2012; Li, Ma & Qu, 2017). In keyword co-occurrence networks, clusters represent the aggregation of similar nodes. The size of the nodes represents the frequency of keyword occurrence. The color of the connecting lines shows the time of the first co-occurrence. Based on the cluster size and the average publication year, the hotspots in a period and the evolution of previous studies can be determined. In addition, the analysis of burst detection, including burst literature (unusually prominent number of citations in a certain period), burst keywords (unusually prominent frequency of occurrence in a certain period), and landmark literature, can also determine the research hotspots in a specific research field (Li & Chen, 2018; Liu et al., 2015; Qiao et al., 2022).

This study uses bibliometric analysis and applies the CiteSpace 5.8R3 software to visualize systematic reviews. Knowledge mapping analysis, such as spatial-temporal distribution, keyword co-occurrence, and burst detection, will be performed for all research related to residents on the theme of rural revitalization in the Web of Science core collection database (1977-2022). This study will reveal the evolution of research themes and emerging research hotspots related to residents in rural revitalization.

2.3 Research Data

Web of Science (WOS) was used as the literature search platform in this study, and the "WOS Core Collection" database was selected. The period was the entire year of related research (the earliest literature appeared in 1977; therefore, the period was from 1977 to 2022). Considering the concentration and coverage of literature, the search strategy was set as TS= ("rural revitalization" OR "rural development" OR "traditional village revitalization") AND TS= (villagers OR residents OR community) for the topic search. This strategy covered the terminology of rural revitalization, while only literature related to residents was selected. The search dates were April 13, 2022, and 2831 records were retrieved. To ensure the quality and representativeness of the data, supplemental papers, conference announcements, reports, and news were excluded. Then 2339 pieces of valid literature were retrieved. The retrieved literature records were downloaded in the format of "abstract, full record (including cited references)" and saved as plain text files, which were used as the research data for this study.

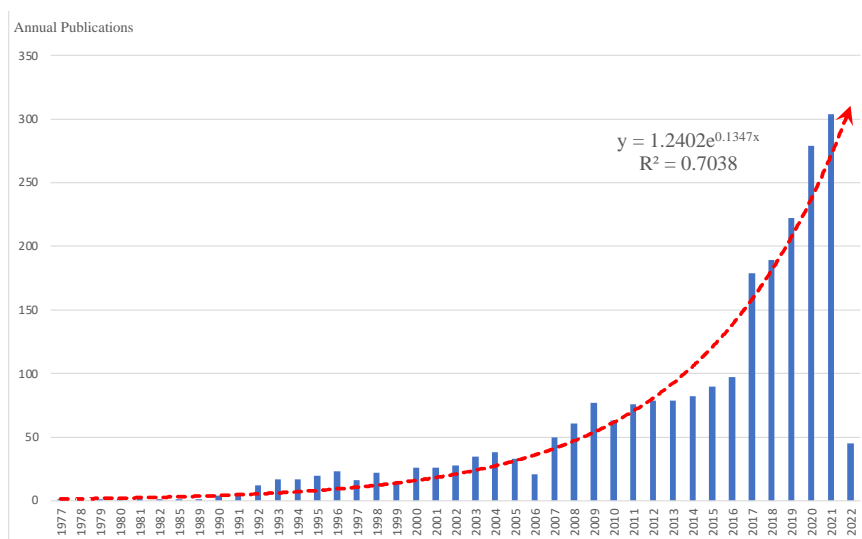
3. Research Results

3.1 Quantity Analysis

An effective way to measure research progress is to investigate the quantity of literature over a period (Wang, 2015). Plotting the time distribution figure of the literature can assess the research status and further predict its development dynamics and trends.

Figure 1 shows the annual publication statistics issued in the links and interactions of villagers in rural revitalization. The blue bars represent the number of articles issued each year, and the red curve is the exponential fitting curve with an R-squared of 70.38%. Thus, it can be approximated that the number of related studies has an exponential growth trend. This exponential curve indicates that the research field is not yet saturated and is still in a rapid development period in which new theories, methods, and technologies will continue to emerge (Li, 2018; Wang, 2015).

Figure 1 Annual Publication Statistics of Related Research (1977-2022)



In Figure 1, the relevant research progress has gone through four development stages: the initial stage (1977-1991), the exploration stage (1992-2006), the growth stage (2007-2016), and the rapid stage (2017-2022).

Initial stage (1977-1991): Since the 1970s, counter-urbanization began to emerge, in which citizens in urban centres moved outward to rural areas and small towns further away from cities. This de-urbanization phenomenon triggered researchers to pay attention to rural revitalization, where research on villagers began to appear.

Exploration stage (1992-2006): Initial exploration in practice did not bring about an academic research boom. The number of annual publications during 1992-2006 was relatively stable at less than 40.

Growth stage (2007-2016): The number of studies increased yearly from 2007-2016. The annual publications have nearly doubled from 50 to 97 this decade.

Rapid stage (2017-2022): 2017 was a turning point when annual publications suddenly doubled. Likewise, this indicates the rapid stage of this research field. The significant increase in subsequent years indicates that the research topic of villagers and rural revitalization has received wide attention from researchers.

3.2 Evolution of Research Themes

A research theme is usually considered a scientific issue that has been studied in many studies (Si et al., 2019). The evolution of research themes reveals the structure and characteristics of the research field. Clustering analysis is an exploratory method that uses algorithms to convert literature data into several clusters to identify and analyze research themes (Linnenluecke, Marrone & Singh, 2020).

The abstract of the literature is a high-level distillation of this research. Keyword co-occurrence refers to the citation of the same terms in multiple pieces of literature, which can reflect concentrated areas and hotspots in a research field.

In this study, 2339 studies were imported into the CiteSpace software for the clustering analysis of keyword co-occurrence. The clustering nomenclature was selected from the abstract terms and labelled using the LLR algorithm. Similarly, the period was set according to the four stages described in the previous section. Consequently, The time slice was set to one year. Synonymous keywords were merged, and identical keywords were deleted. A list of keywords with frequency (Table 1) and keyword co-occurrence maps (Figure 2) was developed based on this strategy.

3.2.1 Frequency of Co-occurrence Keywords

Table 1 lists the top 10 high-frequency terms of research on the links between rural revitalization and villagers in the four stages. This chart shows similarities and heterogeneities in the research themes in the different periods.

Table 1 Frequency of Co-occurrence Keywords on Villagers in Rural Revitalization (Top 10)

Initial Stage 1977-1991		Exploration Stage 1992-2006		Growth Stage 2007-2016		Rapid Stage 2017-2022	
Keywords	F	Keywords	F	Keywords	F	Keywords	F
morality	1	conservation	15	policy	54	impact	119
Costa Rica	1	management	9	management	51	management	99
Africa	1	policy	8	conservation	43	policy	97
/	/	United States	6	impact	28	conservation	62
		Africa	6	Africa	26	agriculture	49
		resource	5	network	22	participation	45
		organization	5	poverty	21	poverty	45
		biodiversity	5	participation	18	livelihood	45
		adoption	4	agriculture	18	sustainability	42
		conflict	3	migration	15	tourism	35

In the initial stage (1977-1991), there were only 27 related papers, which resulted in a small number of co-occurrence keywords. Excluding similar terms, there are three keywords: morality and two regions: Costa Rica and Africa. These terms indicate that in the initial stage, the morality of villagers attracted more attention in rural revitalization. Most study case sites were in Costa Rica and Africa from 1977 to 1991 (Bradbeer, 1989; Omprajash, 1989; Taha et al., 1991).

The co-occurrence keywords increased significantly during the period (1992-2022). The high-frequency keywords of the following three stages contained conservation, management, and policy (Gong & Cong, 2019; Rephann, 1998; Sun, 2016; Uchida & Ando, 1998; Zhuo et al., 2021). Furthermore, this illustrates that the hot topics in the past 30 years have centered on exploring rural resources, conservation, and villager management policies. Therefore, this also indicates that there is no perfect solution to the relationship and interaction between rural development and residents, where researchers are still conducting continuous exploration and investigation.

Apart from the common themes, there were also differences between the three periods. Specifically, in the exploration stage (1992-2006), the research themes were related to resources and their biodiversity and villagers' organization, adoption, and organization. At this stage, researchers have paid attention to villagers' conflicts in rural revitalization (Bah, 1992; Gegeo, 1998; Klammer, 1997; Larsen, 2004; Midgley et al., 2005; Rephann, 1998). As for the research area, in addition to Africa in the previous period, the United States was also included (Gegeo, 1998; Larsen, 2004). During the growth stage (2007-2016), related research began to focus on the dominant value of villagers and explored themes such as villagers' participation (Cabannes & Ming, 2014; Chang et al., 2016; Han & Zeng, 2010) and impact (Sun, 2016), and poverty (Geng, 2008). In the rapid stage (2017-2022), the

research theme of the impact broke through and increased, becoming the most frequent keyword (Yang et al., 2021). Similar to the growth stage, there has been a continuous focus on agriculture, participation, and poverty (Erol & Yildirim, 2017; Gong & Cong, 2019; Liu & Li, 2020; Sabet & Khaksar, 2020)). The new addition of sustainable tourism development shows that the rise of rural tourism is gradually becoming an effective method of revitalization (Yang et al., 2019).

3.2.2 Clustering Analysis of Co-occurrence Keywords

Keyword clustering analysis was performed separately for the four periods, and four visualized co-occurrence plots were obtained (Figure 2). All four plots had modularity Q values greater than 0.3 and weighted mean silhouette values greater than 0.7. These indices indicate that the clustering structures of these four co-occurring plots are reasonable, and the homogeneity within each cluster is convincing (Shi & Li, 2019).

The layout clustering of co-occurrence was chosen from the timeline view, with the vertical axis representing the clusters and the horizontal axis representing the timeline mapping of keyword occurrence. The timeline focuses more on outlining the association between clustering topics in time series, so it could more visually express the themes' evolution. The co-occurrence keywords are labelled below the nodes, and the node size represents the frequency of the keywords. The color of the line represents the time of the first occurrence.

In the initial stage (1977-1991), only one comparison cluster was formed owing to the limited number of co-occurrence keywords. Therefore, this indicates that in the initial stage, the research theme focused on comparative analysis between different regions, such as urban and rural.

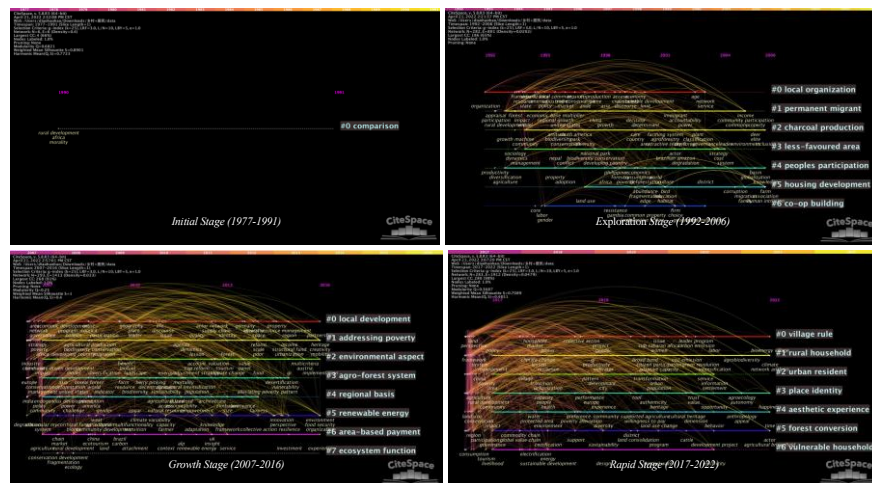
During the exploration stage (1992-2006), 403 studies were related to rural revitalization and villagers. Through a clustering analysis of these studies, seven clusters were obtained: local organization, permanent migrant, charcoal production, less-favoured area, people participation, housing development, and co-op building. The shift from urban to rural areas during the exploration stage changed research themes: communities were given new functions, and people became involved in conserving local plant diversity, water, farmland, forests, and sustainable use.

Co-occurrence keyword clustering analysis of 960 studies during the growth stage (2007-2016) revealed eight clustering themes. These are local development, addressing poverty, environmental aspects, agro-forest systems, regional bases, renewable energy, area-based payments, and ecosystem function. Similar to the exploration stage, this period focused on the sustainable development of rural environments such as agroforestry systems, ecosystems, and renewable energy. It is worth mentioning that during the growth period, a new focus on rural development and the local economy was added, such as rural tourism,

income, and poverty topics, based on which studies on social hierarchy emerged.

The last five years represent a rapid stage of related research. Seven keyword clusters were identified using CiteSpace clustering analysis. Moreover, these clusters included village rules, rural households, urban residents, place identity, aesthetic experience, forest conversion, and vulnerable households. Issues of environmental conservation and sustainability are ongoing. A significant difference from previous research themes is that there has been a greater focus on residents. The instance of these include the management and governance of rural communities, including the improvement of security, income, and educational resources; the residents' sense of place identity; the aesthetic and cultural experience of rural areas; and the study of residents of different genders, regions, or different economic statuses.

Figure 2 The Clustering Analysis of Four Stages



In summary, this study investigated the evolution of research themes during four stages using co-occurrence keywords and clustering analysis. The issues of ecosystems, agriculture, and sustainable development have always been current (in trend) research topics. In the exploratory stage, attention began to be paid to residents' participation. Based on the community, people are involved in the countryside's development and conservation. In the growth stage, local economic development and changes in social classes were the focus. In the rapid stage, research was zoomed by residents. Studies have been conducted from different perspectives, such as residential environment, place identity, aesthetic experience, cultural perception, various resident groups, and the impacts of rural development. The evolution of research themes shows that, in rural revitalization, the role of residents gradually becomes a subject of passive participation. In other words, the research theme gradually focused more on residents' perspectives.

3.3 Hotspots Analysis

Research hotspots are the topics that have the most attention and potential in a specific research field (Chen, 2012; Jin, Ji & Yu, 2018). Tracking research hotspots helps researchers grasp the frontier and future trends. This study used CiteSpace software to detect burstiness in co-occurrence keywords and co-cited literature, as well as analyze important literature in the past five years (the rapid stage) to identify research hotspots and future trends in research on villagers and rural revitalization.

A literature co-citation analysis was performed using CiteSpace. The period chosen was from 2017-2022. One year was chosen as the time slice, and terms were selected from the titles, abstracts, and keywords. A co-cited reference was selected for the node type. Table 2 and Table 3 show burst detection and significant kinds of literature, respectively.

3.3.1 Burst Detection

The burstiness of co-occurrence keywords and co-citations reveals a surge in the frequency of specific topics, indicating that potential topics have attracted the attention of researchers during a specific time (Ali et al., 2019; Si, 2019). Thus, burst detection is considered an indicator of highly active topics and emerging trends. In this study, the authors performed burst detection of keywords and cited references from 2017 to 2022 with a minimum duration of 2. The analysis identified 11 burst keywords and three burst citations. The results are arranged according to burst strength, as shown in Table 2.

Table 2 Results of Burst Detection of Keywords and Citations

No	Keywords	Strength	Duration	No	Citations	Strength	Duration
1	Africa	3.49	2017-2018	1	Innovation and networks in rural areas. An analysis of innovative European projects (Berkes F, 2013)	2.53	2018-2019
2	governance	3.01	2017-2018				
3	organization	2.59	2018-2019				
4	water	2.59	2018-2019				
5	education	2.55	2017-2018	2	Community Resilience: Toward an Integrated Approach (Esparcial J, 2014)	2.32	2017-2018
6	India	2.55	2017-2018				
7	indicator	2.48	2019-2020				
8	poverty	2.45	2017-2018				
9	population	2.33	2020-2022	3	Rural development	2.07	2019-2020

10	renewable energy	2.22	2018-2019		in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas (Salemin K, 2017)		
11	urban	2.13	2020-2022				

The burst detection of co-occurrence keywords shows that researchers focus on three significant hotspots: region, management, and resources. First, the burstiness keywords involved in the study of regions were Africa, India, and urban, indicating that the study of rural development in Africa and India has increased rapidly during the past five years. In addition, more attention has been paid to comparative studies of urban and rural areas. Second, the burstiness keywords in management were governance, organization, education, poverty, and population. Likewise, this reveals that, in rural revitalization, attention is being paid to the organization and governance of villagers. Since 2017, rural education resources and poverty issues have attracted researchers' attention. Third, the sustainable development of the rural environment is also a research hotspot, and the burstiness keywords regarding resources include water and renewable energy.

Burst detection of co-citations identified three references. Research hotspots have focused on innovation projects in rural areas, community resilience, and digital development. Innovation is a critical factor in the rural revitalization and can diversify to improve competitiveness and propose new organizational structures. The first literature points to the implementation of innovation projects relying on comprehensive support from villagers, where the presence of public actors is often the key. The second literature describes community resilience, emphasizing the strengths of developing organizations, focusing on human and local connections and the group's self-activation. The third study, based on comparing digital infrastructure between rural and urban areas, finds that the diffusion of technology in rural areas is hindered by their lower levels of education and skills and that customized policies are needed for rural areas to improve digital development.

From the above analysis, burst detection provides insight into the hotspots of villager-related research in rural development. Academics focus on the differences between rural and urban areas, such as educational resources, poverty issues, and digital development; the second hotspot is around effective ways of rural revitalization, such as the implementation of innovative projects; third, it also focuses on the management of the development process, advocating the organization

and activation of communities; and the fourth point is the conservation and utilization of resources in the process of rural revitalization and the issue of sustainable development.

3.3.2 Significant Literature

Significant literature usually presents critical theories or innovative ideas, indicating the frontier of scientific research. Significant literature can be divided into two types: classic literature that lasts for a long time and is highly cited, that is, landmark literature, and transitional literature, which has a sharp increase in citations in a short period, that is, pivot literature (Li & Chen, 2018).

Landmark literature is the node literature with high co-citation frequency, which is always the high-quality literature in the subject area and plays a fundamental role in evolution. The pivot literature is the node literature with high betweenness, also called between centrality, which connects two clusters or links various nodes within a cluster (Chen, 2006). The appearance of a pivot node can lead to a milestone shift in the development process. By analyzing the landmark and pivot nodes in the co-citation network, we can effectively grasp the chain of hotspots. Table 3 shows the landmark literature with co-citation frequency higher than 10 times and the pivot literature with betweenness greater than 0.1 (Chen, 2006; Li & Chen, 2018).

Table 3 Landmark Literature and Pivot Literature in Co-citation Network

No	Authors	Title	Journal	Landmark	Pivot
				Frequency	Betweenness
1	Liu YS	Revitalize the world's countryside	NATURE	26	0.23
2	Bosworth G	Empowering Local Action through Neo-Endogenous Development; The Case of LEADER in England	SOCIAL RURAL	19	0.18
3	Liu YS	Introduction to land use and rural sustainability in China	LAND USE POLICY	17	0.11
4	Bock BB	Rural Marginalisation and the Role of Social Innovation; A Turn Towards Nexogenous Development and Rural Reconnection	SOCIAL RURAL	16	0.11
5	Neumeier S	Social innovation in rural development: identifying the critical factors of success	GEOGR J	16	0.12

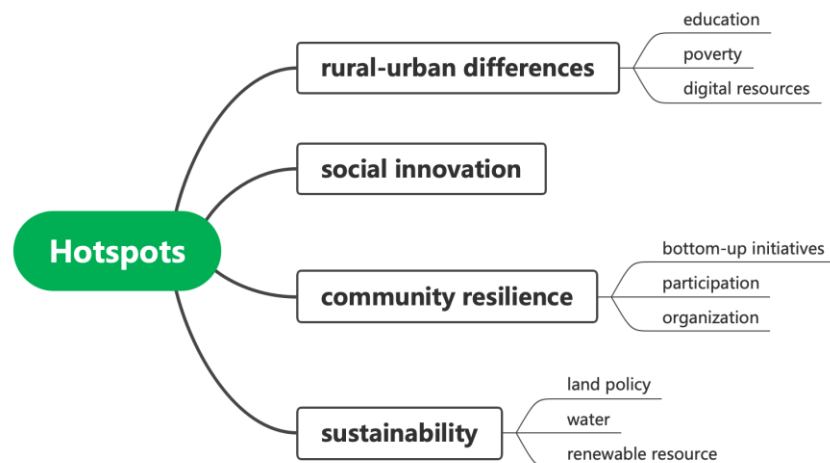
In Table 3, there are five studies that are both landmarks and pivots, meaning that these five papers are widely cited hotspots and turning

points in different research directions. In other words, these five significant studies led to new research hotspots.

The first suggests that bottom-up initiatives should encourage local stakeholders, including entrepreneurs and villagers, to work together. It also clarifies that rural development should be for locals rather than for investors. The second study used the LEADER case in England to highlight the importance of bottom-up rural development (Bosworth, 2016). Bosworth suggests that negotiation and coordination between top-down and bottom-up approaches lead to more decisive action for rural development. The third paper provides an overview of China's land policy and sustainable rural development (Liu, 2018). It includes urbanization, farmland preservation, "rural diseases," rural transformation and reconstruction, and changing urban-rural interactions. The fourth and fifth articles focused on social innovation projects in rural areas (Bock, 2016; Neumeier, 2017). Social innovation is seen as a panacea for achieving development and growth while ensuring social inclusion and resisting inequality. It is unique in that social innovation relies on villagers' self-reliance and self-organization, while at the same time, actual villagers' participation can effectively promote social innovation.

Through the analysis of burst detection and significant literature, the hotspots of interaction between villagers and rural revitalization can be summarized, focusing on urban-rural disparity, social innovation, bottom-up projects, community resilience, resource conservation, and sustainable development in rural areas.

Figure 3 The Hotspots of Villagers in Rural Revitalization in the Growth Stage



4. Discussion and Limitations

In recent years, the dominant role of villagers in rural revitalization has been emphasized. Similarly, using bibliometric analysis, this study systematically combed 2339 relevant studies to investigate the evolution and hotspots of research on links and interactions between villagers and rural revitalization in the WOS core collection. This study found that.

(1) Studies on the interaction between villagers and rural revitalization have gone through four developmental stages: the initial stage (1977-1991), exploratory stage (1992-2006), growth stage (2007-2016), and rapid stage (2017-2022). The growth trend of this research area is exponential, indicating that current research is not saturated, and new directions and topics will still be generated.

(2) A frequency analysis of co-occurrence keywords found that conservation, management, and policy were mentioned the most.

(3) Research themes evolved in four stages of development. The issues of the rural environment, agricultural development, and sustainable development have always been hot research topics. In the initial stage (1977-1991), research themes focused on comparative analysis, such as urban and rural areas and between different regions. During the exploration stage (1992-2006), communities were given new functions, and people started participating in conservation and sustainable development. In the growth stage (2007-2016), the focus on sustainable development of the rural environment was continued, and the contents of regional development and the local economy were newly added. As for the rapid stage (2017-2022), the significant difference from previous research themes is the increased focus on residents. The evolution of the research themes shows that villagers gradually become protagonists in rural revitalization.

(4) Through burst detection and significance literature, the research hotspots can be summarized as urban-rural difference studies, social innovation, bottom-up projects, community organizations, and sustainable development.

However, this study has some limitations. First, although several visualization software packages are used for bibliometric analysis, this study only used CiteSpace. CiteSpace can extract the evolution and hotspots of the research field, but the results may be different if other software is utilized for data analysis. Second, in terms of thematic evolution, the data in this study were selected only from the WOS core collection, which may have led to some bias in the results. Future studies should address these limitations to confirm the results of the present study.

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