

Exploring Trends in Rural Development Research: A Bibliometric Analysis

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Abstract

This article aims to analyze the changes related to the concept of rural development from 2000 to the present and to understand the research trends on this topic. For this purpose, the Author Keywords and Keywords Plus of the various scientific articles of Web of Science (WoS) have been used employing the following terms: rural develop* and sustainable* and environment*. The VosViewer and R-bibliometrix programs have been used to carry out the study. There is a clear difference in the implementation of rural development in developing countries compared to their developed counterparts. The former focuses on the vulnerability of livelihoods and poverty reduction, while the second focuses on multifunctionality, food security, tourism, governance, and climate change. Among the geographic regions that stand out is “China,” which opts for the production of agrofuels and the use of transgenic seeds; the European Union, which since 2000 has granted greater importance to rural development and the multifunctional concept of agriculture through its exclusive CAP (Common Agricultural Policy); and Spain which stands out due to the rich biodiversity of its territory. In the past, research focused on aspects associated with agriculture, sustainability, and rural development had more weight. Nowadays, research related to environmental services, rural resilience, and the vulnerability of these areas vis-à-vis current global change processes such as climate change and changes in land use has come gained ascendancy.

Keywords

Bibliometrics, rural development, environmental sustainability, research trends

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Introduction

In recent decades, rural areas of the planet have encountered various barriers to creating and developing to improve the quality of life of these societies and the conservation of the environment. Today, its future is conditioned by global problems such as climate change, land degradation, deforestation, biodiversity loss, poverty, hunger, social exclusion, and geographical isolation (Mihai et al., 2020). In addition to these aspects, issues related to pandemics, such as the one we are currently experiencing, must also be added (Henning-Smith, 2020; Paul et al., 2020; Lakhani et al., 2020; Kumar et al., 2020; Chen and Chen, 2020)

Examples of these barriers include the data collected by the United Nations, which states that, globally, around 80 percent of people living in extreme poverty live in rural areas, with the poverty rate in these areas three times that of urban areas on the planet (United Nations, 2019).

The main objective of rural development in the EU is to consolidate rural development policy and new bottom-up planning, with protagonists of change: the inhabitants of the territory who will manage their own development (Nee, 2010; Gao, 2016; Wang, 2016). The core of this trend is the LEADER initiative based on the decentralization and localism of decision-making (Ray, 2000). This program has been extrapolated

to many territories outside the European Union, such as Taiwan (Wu et al., 2021), Japan (Yamaoka et al., 2008), Georgia (Fernández Portillo et al., 2019), Colombia (Botero, 2009), and South Africa (Sáez, 2012).

This work aims to analyze, through Author Keywords and Keywords Plus, articles published in the WoS database in the period 2000-2021, create several different clusters representing trends and observing the evolution of related terms. This will enable us to understand the challenges faced by rural areas to improve their development and management in the medium and long term.

Review of the Scientific Literature

Although the concept of “development” is extremely difficult to define given the complexity of the processes involved, it is often associated with the idea of “social change,” “evolution,” “progress,” or “modernization” (Vázquez Barquero, 2005). Two essential ideas underlie the concept of development: the idea of “engine,” that is, something “that drives or delays”; and the idea of “behavior patterns,” that is, “where you go or want to go.” From the rural point of view, today, the engine of development in developed countries is associated with a culture of citizen participation, innovation, diversification, and the capacity for initiative and intervention by public authorities promoting the cultural change that this entails (Hernández-Maestro, 2014). Meanwhile, the objective is related to the improvement of quality of life, a concept that integrates the economic, the social, and the environmental. As for developing countries, the rural development approach is based on their current situation and different reality. It is rooted in a situation of poverty, in many cases, extreme, coupled with the absence of low or no effective rural development policies to solve this problem (Bekele and Silshi Merid, 2019). On the one hand, there are welfare-oriented actions carried out by non-governmental organizations or aid programs from abroad; on the other hand, government policies with a robust productivist approach emphasizing macroeconomic problems (Pérez et al., 2001).

The rural environment was traditionally defined as the physical and social space of agrarian activity, identifying rural and agrarian as the key concepts (O’Laughlin et al., 2013; Meyer et al., 2021;). In other instances, it has been explained in contrast to urban development, usually in a pejorative manner, assuming the inhabitants of low-density areas or rural areas have different behaviors and attitudes to those dwelling in large densely populated urban and industrial areas (Bhalla, 1990).

There are currently many definitions of the rural world depending on the branch of knowledge that analyzes it. However, it tends to conceive it as a pluriactive system, encompassing sociological components (sectoral distribution of the labor force, quality of life, communication infrastructures, provision of health, social, educational, health services.) Gilbert, 2008), geographical (distance ratio to urban centers, population density, distribution of human settlements) (Ilbery, 1998), multifunctional (new leisure activities, environment, food safety) (Knickel and Renting, 2000; Râmniceanu and Ackrill, 2007; Morgan et al., 2010), economic (contribution to GDP, dependence on natural resources) (Shortall, 2004; Murray and Dunn, 1995). Among all possible conceptualizations, the following is offered by the European Commission (1988), “The concepts of the countryside or of rural society are by no means merely geographical in scope, since economic and social life outside our towns and cities is of great complexity, embracing a wide range of activities”.

The concept and model of Rural Development is a response to the inability of classical economic development models to solve the problems of developing countries whose economy is based on agriculture. In contrast, in developed countries, rural development is currently applied concerning the deterioration of rural areas, which are unable to maintain a level of growth similar to that of urban areas, mainly due to the loss of competitiveness and the ability to generate wealth from agriculture, which in earlier times had been a significant economic driver (Shucksmith, 2010; Lowe et al., 2019).

For example, in the case of the European Union, Rural Development is understood as the “process of balanced and self-sustaining revitalization of the rural world based on its economic, social and environmental potential through regional policy and integrated territorial implementation of measures by organizations participatory” (Quintana et al., 1999).

Research methodology

Bibliometrics is a valuable resource for performing an exhaustive analysis of scientific production in a specific field (Junquera and Mitre, 2007).

To this end, a previous search was performed through the leading Web of Science collection due to the high quality of its records (Gao and Guo, 2014). The following terms were selected: rural development, sustainability, and environment with the following connotations: rural develop* and sustainab* and environment*. The search was carried out in December 2020 and 1,365 documents were retrieved in which the selected terms appeared in the following fields: Title, Summary, Keywords Plus, or Author Keywords. These documents were then filtered by scientific articles resulting in 1,046 for the period from 2000 to 2021.

The data was then exported as a complete record and the number of citations in plain text for viewing through VosViewer and R-bibliometrix. These programs performed a complete and visual analysis of keywords and author words. The VosViewer program offers the potential to process a vast amount of data (Van Eck and Waltman, 2009) and facilitates the visualization of scientific maps. In this research, the software was used to visualize all keywords and form clusters.

Furthermore, through the R-bibliometrix package, it is possible to work in the environment of the R-Studio application more efficiently using the biblioshiny interface, which permits the graphical visualization of segregated results by Keywords Plus and Author Keywords and the comparison of more detailed criteria (Aria and Cuccurullo, 2017). Based on both programs' graphical elements, the data was analyzed, the results visualized, and the results discussed to check whether the keywords provided by the Author and the Keywords Plus that appear in the document's title offer different or similar results.

Results and discussion

The bibliometric map clustering includes all keywords (Keywords Plus and Author Keywords), frequency of occurrence, and network. As a result, five thematic clusters were obtained that define the main streams of research on rural development, sustainability, and the environment (Figure no. 1).

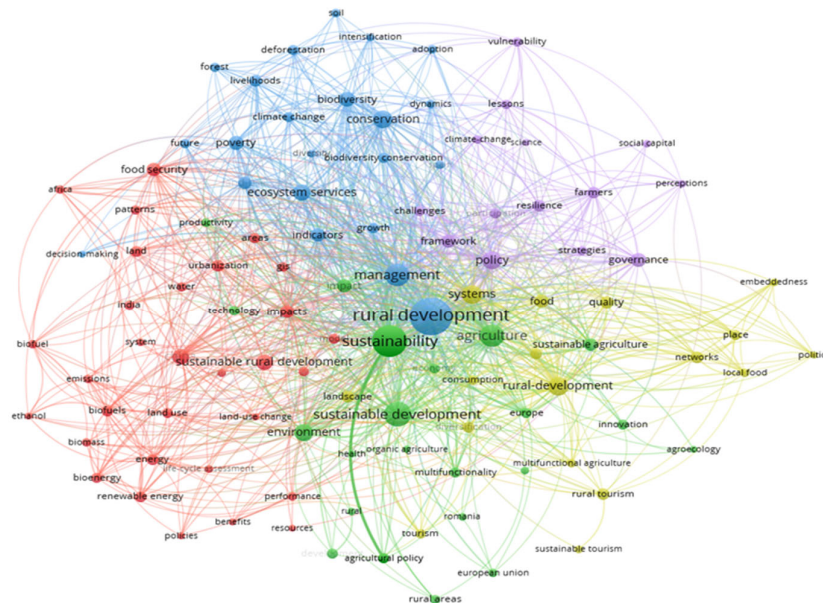


Figure no. 1. Bibliometric Map of Clustering by all Keywords

Cluster 1 (Red). The cluster groups a set of 31 items, in which the central pillar are keywords related to bioenergy crops and the renewable energy sector (“biofuel,” “bioenergy,” “energy,” “renewable energy,” “biomass,” and “ethanol”), food security and land use (“land,” “land use” and “land-use change”). In this cluster, all research related to bioenergy crops in rural areas worldwide is grouped thematically. In this sense, numerous publications address the impact of significant changes in uses and deforestation associated with the production of agrofuels, loss of biodiversity, or the collapse of traditional agriculture in these areas (Marandure et al., 2020; Ngcobo et al., 2020; Ngcobo et al., 2020; Sanz-Hernandez et al., 2020; Martinho, 2020). Of note is the frequency of occurrence of the keyword “China,” highlighting that this type of research is a regional trend.

Cluster 2 (Green). It groups a set of 22 items with a clear predominance of keywords related to the agricultural sector (“agriculture,” “sustainable agriculture,” “agricultural policy,” “common agriculture policy,” “agroecology,” “organic agriculture”). It thus encompasses all research related to sustainable agricultural development in rural areas. The critical weight of this line of research is highlighted by the frequency of occurrence of the keywords “Europe” and “European Union” linked to agricultural and rural policies in the EU (Thinda et al., 2020; Hamann, 2020; Meinhold and Darr, 2020; Ibrik, 2020). Since 2000, the European Union’s CAP, in its rural aspect, focuses on the concept of multifunctionality in agriculture (Directorate-General for Internal Policies, 2005).

Cluster 3 (Blue). It groups a set of 22 items, among which the most important are terms such as “management,” “conservation,” “ecosystem services,” and “biodiversity.” On the other hand, less frequently occurring terms such as “poverty,” “land use,” “livelihoods,” or “climate change” also appear. This cluster also encompasses those articles that deal with the importance of establishing policies for the management and conservation of the natural heritage and biodiversity of rural areas of the planet since they provide the population as a whole with many environmental services and also play a vital role in the fight against poverty in developing countries or the effects of climate change globally. (Rodríguez Sousa et al., 2020; Liang et al., 2020; Zhong et al., 2020; Zhang et al., 2020).

In this cluster, the keyword “Spain” appears, evincing the importance of this type of research in this country, possibly because of its rich biodiversity and significant surface area of protected areas (Esparcia et al., 2015; Macías Vázquez and González, 2015; Sánchez-Martinez et al., 2020; Mowl et al., 2020).

Cluster 4 (Yellow). This cluster groups a set of 17 items, among which the word “system” stands out, as well as terms related to the economic sector of tourism (“rural tourism,” “tourism,” “sustainable tourism”). It is followed by terms related to food (“food,” “local food”), “quality,” “landscape,” and “diversification.” This cluster includes research related to tourism’s contribution and potential as an economic sector to promote sustainable development and economic diversification in rural areas, usually characterized by the quality of their landscape and local gastronomy. On the other hand, the fact that the word “system” is the most frequently occurring term in this cluster is linked to the widespread opinion that exists in academia that the vast majority of rural problems are systemic and universal across the globe and that therefore cannot be addressed in isolation. (Dinis et al., 2019; Qu et al., 2020; Wang et al., 2020; Meyer et al., 2021).

Cluster 5 (Purple). It groups a set of 14 items, among which the most frequently repeated term is “policy” and are related to governance in rural areas (“governance,” “participation”), “framework,” “challenges,” “resilience,” and so on; policies of sustainable development in rural areas, as well as issues related to the local population participation in decision-making regarding this type of policy. (Nordberg et al., 2020; Cisilino and Monteleone, 2020; Damayanti and Syarifuddin, 2020; Ludvig et al., 2021).

According to the thematic evolution of Author Keywords (Figure no. 2), the terms “environment” and “rural development” have evolved in recent years into issues related to governance, a glimpse into the key role that researchers in this field play in highlighting issues related to the participation of the population in decision-making.

The term “food security” has evolved into environmental issues, consistent with the current scientific consensus that much of the present global problems related to population food security are also linked to environmental problems.

Finally, the term “sustainable development” has evolved into issues associated with rural development.

The evolution of Keywords Plus (Figure no. 3) displays a more dynamic effect since the themes of “model” and “management” branch out to become issues related to “rural development,” “urbanization,” “indicators,” “ecosystem services,” and “innovation.” The only theme that does not focus on sustainability is “framework.”

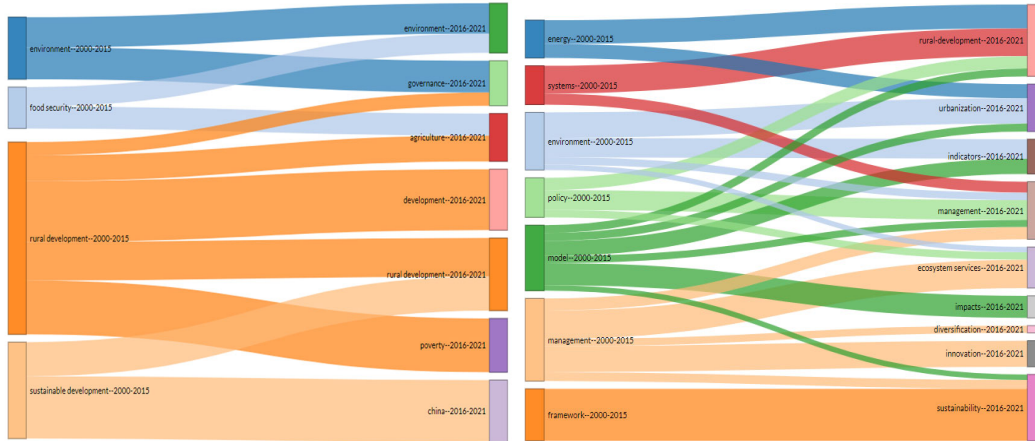


Figure no. 2. Evolution of Topics by Author Keywords **Figure no. 3. Evolution of Topics by Keywords Plus**

Conclusion

Over the past 20 years, the publication of articles related to Rural Development has been extensive. We have attempted to characterize the lines of research that have been developed through a cluster analysis and how the trends have evolved over time through the analysis of keywords. Five clusters have been obtained that focus on bioenergy crops, sustainable development in Europe, conservation and diversity, tourism, and local governance and participation. A significant finding of the application of Author Keywords and Keywords Plus is that in the case of the former, the results obtained have followed a more traditional trend (in terms of development, governance, agriculture). In the case of the latter, greater dynamism and diversification are observed in the research topics (urbanization, ecosystem services, innovation). Thus, it can be concluded that the analysis of Keywords Plus is a more interesting and powerful tool, offering a more comprehensive range of future research opportunities in this field.

The diversity of theoretical bodies dealing with this subject and the existing fragmentation among them has led to the fact that there is currently no consensus in the academic field on the definition of the concept of Rural Development. Consequently, it is understood that it is necessary to address research aimed at reconceptualizing and realizing the term Rural Development. This challenge is of enormous importance to enable this area to adapt to the dynamism and complexity of problems and challenges currently facing the rural areas of the planet.

In this context, development in rural areas should be geared towards innovation through multidisciplinary approaches that bridge the growing gap between rural and urban areas in developed and developing countries. This is embodied by the so-called “smart rural area,” a term that has become particularly important in recent times and which aims to create the context necessary for the emergence of high-impact economic, social, and environmental innovation initiatives that contribute to increasing the well-being, quality of life, and attractiveness of rural areas. On the other hand, for new initiatives, stemming from the bottom-up and adapted to the peculiarities of each territory, to emerge, public authorities must commit to improving access to higher education in rural areas and promote participatory decision-making processes.

Among the limitations of this study, we can point out that although a vast quantity of research on Rural Development has been carried out over the last decade focused on analyzing specific aspects of this area, there is a lack of investigation focused on studying the relationships between the different lines of research, particularly as it relates to the problems of the fight against poverty in developing countries.

It must also be taken into account as a limitation that, on the one hand, there are still gaps in rural areas related to new Information and Communication Technologies, which makes it very difficult to implement innovative projects that revitalize the rural environment, especially in times of a global pandemic. On the other hand, younger generations that have grown up in rural areas lack a strong sense of belonging to their environment, limiting the generational handover process in both the long and short term. Given this situation, the collaboration of all actors involved in society (research centers, population, private enterprise, and the public sector) is essential to reverse the phenomenon and make rural areas an attractive alternative to meet the needs of all generations.

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