

# Systematic Literature Review and Bibliometric Analysis on Leadership in Co-operatives

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## Abstract

**Introduction:** Past studies in Cooperatives are strewn. The authors intend to make an effort to understand the trends in the studies in the area of cooperatives and leadership. This article aims to provide an overview of existing literature on leadership in cooperatives and further identify future scope based on existing literature.

**Objectives:** This research aims to examining the publication pattern from 2001 to 2024 of the papers included in the Scopus database, to comprehend the scholarly contributions to cooperatives and leadership.

**Methods:** To better understand the pertinent literature, 136 peer-reviewed research and review publications from 2001 to 2024 were taken from the Scopus database, researched, and assessed. The analysis has provided yearly trends of publications, top most cited papers, and prominent authors. The Bibliometric Analysis revealed an association between co-authors and country, Co-citation and Cited sources, Co-occurrence, and important keywords.

**Results:** the study suggests the future scope for research based on existing research on leadership in cooperatives. Cooperatives are directly contributing to sustainable development due to their dual contribution to social and economic objectives. This research gives insights into leadership as an important dynamic that will boost social and policy frameworks for a further edge.

**Conclusions:** Co-operatives are the most primordial form of collectives that have a strong impact on society at large. Economic structure and business environment developments have made tremendous changes in the working framework of co-operatives. Leadership is an essential constituent of any business; co-operatives are no exception.

**Keywords:** Cooperative Leadership, Governance, Sustainability, Systematic Literature Review, VOS viewer

## 1. Introduction

Cooperatives are an exclusive set of associations that are based on the principles of democratic decision-making and collective ownership. Cooperatives are a significant part of any country's socio-economic outline due to their dual benefits. The International Co-operative Alliance defines a co-operative as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" [1]. The research done in the area of cooperatives is strewn where specific attributes leading to the success of cooperatives have not been addressed. Every country has cooperatives, which are present in almost all sectors of society, including credit, marketing, insurance, food production,

finance, and the financial and medical industries [2]. Since its official beginning in India in 1904, The Indian Co-operative Movement contributed substantially to developing the agricultural and rural sectors of the nation's economy. This is because it combines the capabilities of the public and private sectors by assisting small and marginal farmers and vulnerable communities. Immediately following independence in 1947, the government recognized the cooperative sector as a third economic sector to act as a balancing factor between the private and public sectors [2]. The Indian Farmers Fertiliser Co-operative Limited (IFFCO), AMUL, and Sittilingi Organic Farmers Association (SOFA) are India's largest and most successful co-operatives. Judgments, successful implementation, regulations, and protocols are significant factors in collective

success. As per [3], Cooperative initiators must constantly strengthen their leadership to guarantee continued development success. However, the Cooperative board has faced two most frequent issues. One is directors' quality, not because cooperative directors are not typically knowledgeable, moral individuals. On the contrary, they are often unaware of the wider corporate world and its practices. The second problem with cooperative boards involves conflicts of interest [4]. In values-based organizations like Co-operatives, relationships between leaders and members must be honest and ethical [5]. Despite being established by their members to serve their needs, co-operatives suffer from the reality that relying on their members' allegiance to the group is impossible. Instead, the loyalty of the organization's members depends on their belief that it serves their interests, i.e., that its leaders are functioning as the members' functional agents [6].

## **2. Objectives**

Leadership in cooperatives is crucial for the success and sustainability. Over the last several years, many studies have been conducted in co-operatives. These primarily focus on identifying constraints in co-operatives, suitable leadership styles, and factors affecting growth co-operatives. Taking gaps from the literature related to a holistic view on what are the publications trends and focusing especially on leadership and cooperatives, this research work aims to properly portray the status and evolutionary trajectories of leadership in cooperatives in the literature. We use a novel analytical strategy that combines VOS viewer<sup>31</sup> analysis with SLR [7]. While SLR makes it possible to find relevant articles in the field, VOS viewer analysis provides objective, algorithmic identification of the essential phrases and aggregates them into discrete clusters that indicate the primary study topics and directions of the field's future research.

The following research questions are addressed.

RQ1: What is the year-wise research trend in cooperative leadership?

RQ2: Which are the most significant articles on cooperative leadership?

RQ3: Which are the leading journals that publish articles on cooperative leadership?

RQ4: Which are the top contributing countries to cooperative leadership?

RQ5: Who are the prominent contributing authors of cooperative leadership?

RQ6: How close is the collaboration between authors from various countries?

RQ7: What is the level of collaboration between researchers from various organizations?

RQ8: What is the relationship between co-citation and cited sources?

RQ9: Which are the keywords frequently studied along with cooperative leadership?

RQ10: What is the relationship between bibliographic couplings with documents?

The following is the underlying framework of the paper. The first section mentions an introduction to leadership in the cooperative. The approach for the literature review is explained in the second part. The third part has an discussion of results, which includes general, descriptive, and bibliometric analysis. The fourth part focuses on the results and discussions, while the last part includes recommendations for further study.

## **3. Methods**

The PRISMA (Preferred Reporting Items for Systematic Reviews) procedure is used to conduct a Systematic Literature Review (SLR) in this study [7]. The PRISMA approach identifies and selects scientific publications of greater quality and impact. It is divided into four stages: (1) identification, (2) screening, (3) eligibility, and (4) inclusion is all required [7]. As shown in Figure 1, the PRISMA flow diagram was strictly followed and applied in this SLR. As a result, the technique included four significant processes: procedure description analysis (Identification), article selection (Screening), Finding leadership in cooperative-related publications (Eligibility), and finally, selected papers (Inclusion). The initial stage was a keyword search. As part of this process, the Scopus database was utilized to compile significant literature sources on leadership in co-operatives. The second part of the procedure entailed examining each indicator, aspect, and component related to leadership in cooperatives and assessing whether they were directly or indirectly related to one another. A systematic keyword search was first used to find 5694 articles on leadership in cooperatives from Scopus. For conducting the literature search, the following keywords were used: "co-operatives" AND "leadership" OR "Co-operative organization,"

“leadership” AND “co-operative societies”, “leadership” AND “co-operative governance.” The period of 2001 to 2024 was chosen for the study. Thus, a careful and extensive selection procedure was used to choose the selected articles. The objective was to gather comparable studies on leadership in cooperatives and ensure the findings' reliability and applicability. The following inclusion criteria were used to pick articles on cooperative leadership: 1) the keywords mentioned above; 2) publications between 2001 and 2024 3) articles, reviews, and conference papers; 4) English language; and 5) Publication stage 6) only papers pertinent to the topic of co-operative leadership.

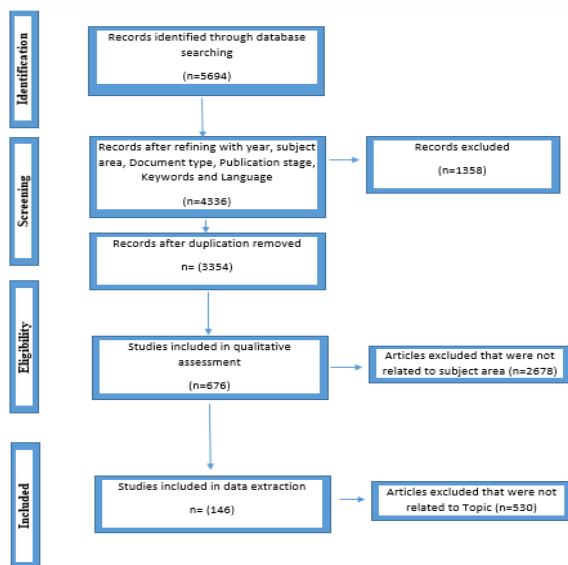


Figure 1. SLR Flowchart Created with PRISMA (2002–2024).

After eliminating 1358 papers that did not fit the inclusion criteria from the 5694 total chosen papers pool, 4336 viable papers were found, nine hundred eighty-two duplicate entries, 2678 articles unrelated to the theme, and 530 articles unrelated to a particular topic were removed. To conduct the analysis, 146 papers from the final sample were selected. These papers covered the topic of leadership in co-operatives in greater detail [8]. The study was done using a VOS viewer and Microsoft Excel. VOS viewer was used because it displays bigger bibliometric maps and has zooming, scrolling, and searching features that greatly aid in the careful analysis of a map [9].

#### 4. Results

##### 4.1 General Descriptive Analysis:

##### 4.1.1 Publication Trend:

Considering the results in Figure 2, the articles on leadership in cooperative studies from 2001 to 2004 have an up-down trend. In 2010, the number of publications increased significantly to 11. Again, the trend was observed up-down after 2012, showing an excellent continuous number of publications in 2018. Again, the trend was constant in 2020-2021. It got increased in 2023 with eight articles.

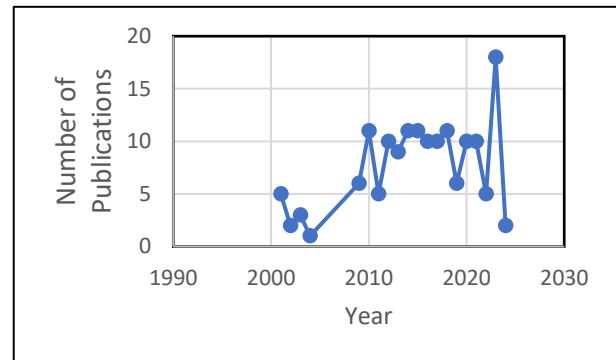


Figure 2. Number of Publications per year (2001-2024).

##### 4.1.2 Top Research:

Table 1 lists the top 10 highly cited publications about leadership in cooperatives, along with the authors of each article, the total number of citations, and the journal where each article was published.

Table 1. Most instrumental research papers

| SLN | Article title   | Author                | Total citations | Journal     |
|-----|---|-----------------------|-----------------|-------------|
| 1   | The impact of co-operatives on agricultural technology adoption: Empirical evidence from Ethiopia | Abebaw D., Haile M.G. | 275             | Food Policy |

|   |   |  |             |  |
|---|---|--|-------------|--|
| 2 | Co-operatives, concessions, and co-management on the Pacific coast of Mexico  | McCay B.J., Micheli F., Ponce-Díaz G., Murray G., Shester G., Ramirez-Sanchez S., Weisman W. | 1<br>2<br>0 | Ma<br>rin<br>e<br>Poli<br>cy                               |
| 3 | Ethiopian agricultural co-operatives in an era of global commodity exchange: Does organizational form matter?   | Francesconi G.N., Heerink N.   | 1<br>0<br>6 | Jou<br>rna<br>l of<br>Afri<br>can<br>Eco<br>no<br>mie<br>s |
| 4 | The role and characteristics of social entrepreneurs in contemporary rural co-operative development in China: case studies of rural social entrepreneurship | Lan H., Zhu Y., Ness D., Xing K., Schneider K.   | 3<br>9      | Asi<br>a<br>Pac<br>ific<br>Bus<br>ine<br>ss<br>Rev<br>iew  |
| 5 | Women Leaders and Social Performance: Evidence from Financial Co-operatives in Senegal  | Périlleux A., Szafarz A.   | 3<br>4      | Wo<br>rld<br>De<br>vel<br>op<br>me<br>nt                   |

The study “The impact of co-operatives on agricultural technology adoption: Empirical evidence from Ethiopia” [10] has been carried out in Ethiopia to examine how co-operatives affect the acceptance of agricultural technology. The study’s findings show that members in cooperatives are more likely to come from households with a male household lead, have a more manageable approach to agricultural services, own cattle, work in non-agriculture activities, and have leadership abilities. The findings demonstrate that cooperative participation considerably influences fertilizer adoption and is highly related to geographic location

and household head age. When only agricultural co-operatives are considered, the effect on the uptake of pesticides proves to be statistically significant. The study makes recommendations as collective membership has various effects on members’ absorption of fertilizer. Cooperatives can be crucial in increasing smallholder farmers’ adoption of agricultural technology. To study the impact, the study uses a variety of factors, one of which is a dummy variable for the leadership experience of the household head in the village. Household heads belonging to cooperatives are frequently more inclined to have demonstrated previous leadership skills than non-members. A person’s likelihood of joining a cooperative is greatly and significantly influenced by their involvement in off-farm employment activities and their experience in community leadership [11].

Mexico’s ten fisheries co-operatives have participated in the research “Co-operatives, concessions, and co-management on the Pacific coast of Mexico” [12]. The study investigated the factors contributing to the fisheries commons’ effective community-based management. The case study recognizes the significance of small-scale production, transparency, readability of the used resources and fisheries, visibility of social and territorial borders, closeness and linkages among territorial units, and a strong sense of community. The co-operatives invested a lot in developing their leadership, expertise, ability to make open, democratic decisions, and “vigilance,” or the ability to enforce the law and manage the organization. For better understanding, elaborating on the “Leadership, Fairness, transparency” section is directly related to the principles of justice and honesty in the Pacifico Norte co-operatives. Directors are cooperative members chosen to serve on the administration or executive enforcement councils by the general membership. Each post has a two-year tenure, while some co-operatives permit re-election for different terms in a row. Rotating leadership contributes to distributing leadership experience across the membership and probably enhances comprehension of cooperative values and operations. Even when some individuals have learned what the responsibilities of the leadership role entail, they are often replaced by someone who may have to start from scratch. Regular rotations

provide this cyclical irregularity in leadership, a system expenditure that might impede system expansion. However, cooperative members said that the system was better than the ones where extended tenure may lead to corruption and partiality. Financial incentives encourage loyalty to the cooperative and adherence to its regulations. Most cooperatives offer retirement plans to their representatives, and many member benefits are cumulative and increase with membership. The significant value of membership also encourages obedience since losing membership and its benefits are one consequence of breaking the rules. Fairness strengthens commitment and compliance in the co-operatives under investigation. At its most basic level, the federal legislation on co-operatives requires fairness and norms for establishing openness about allocation and distribution choices. However, co-operatives are ultimately responsible for carrying out these requirements. The utilization of regularly conducted, open meetings to make the majority of critical decisions contributes significantly to developing a sense of fairness among cooperative members [12].

According to a study in Ethiopia titled "Ethiopian Agricultural Co-operatives in an Era of Global Commodity Exchange: Does Organisational Form Matter?" [13] members of the cooperative and farmers who are not members do not commercialize at significantly different rates in Ethiopia. Though, authors contend that depending on the cooperative organization under consideration, the effect of membership on commercialization may differ dramatically. The authors used statistical analysis and propensity score matching to a sample of rural farm families where the agricultural produce exchange system would operate. They constantly find that farmers who belong to marketing co-operatives have significantly higher commercialization rates than non-member farmers. On the other hand, livelihood co-operatives seem to have little or no effect on the commercialization of Ethiopian farmers. They conclude that Ethiopia's capacity to alleviate rural poverty and increase agro-commodity commercialization may be achieved through the system of commodities exchange's selective incorporation of marketing cooperatives [13].

The purpose of the study, titled "The role and characteristics of social entrepreneurs in contemporary rural co-operative development in China: case studies of rural social entrepreneurship" [14] to look at the key issues surrounding how social entrepreneurship and leadership contribute to the development of rural cooperatives. Findings show that several crucial characteristics of social entrepreneurship are present in creating rural cooperatives. The study results are significant for rural community growth in economies concerning building social entrepreneurship abilities [14].

According to the study "Women Leaders and Social Performance: Evidence from Financial Co-operatives in Senegal," [15] how do female board members and executives affect an organization's social performance? To respond to the question, this study employs a special dataset from a Senegalese system of 36 financial cooperatives. They consider the loan choices reached in collaboration between the politically appointed board and the senior management chosen by the network's main union. Three objects were found. First off, boards predominately made up of women encourage social orientation. The second is that female managers usually adapt their plans to the demands of regional boards. Finally, to reduce the social bias of the boards, the central union typically sends male colleagues to boards with a majority of women [15].

**Table 2. Leading journals publish articles on cooperative leadership**

| <b>Journal</b>                           | <b>Number of Publication Per Journal</b> |
|--|--|
| Sustainability (Switzerland)             | 9  |
| Journal of Rural Cooperation             | 5  |
| Journal of Rural Studies                 | 3  |
| Land Use Policy                          | 3  |
| American Journal of Community Psychology | 3  |
| PLoS ONE                                 | 3  |
| Behavioural Processes                    | 2  |
| Evaluation and Program Planning          | 2  |
| European Business Review                 | 2  |
| Harvard Business Review                  | 2  |
| Asian Social Science                     | 2  |

|  |   |
|--|---|
| Annals of Public and Co-operative Economics                            | 2 |
| Journal of Theoretical Biology   | 2 |
| Human Nature   | 2 |
| Philosophical Transactions of the Royal Society B: Biological Sciences | 2 |
| International Journal of Human Resource Management                     | 2 |
| International Journal of Social Economics                              | 2 |
| Health Care Management Review  | 2 |
| World Development  | 2 |

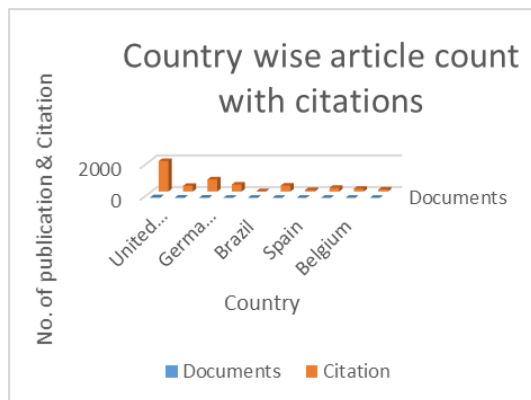


Fig 3. Top contributing countries on cooperative leadership (2001-2024)

Table 3. Prominent contributing authors on cooperative leadership.

| Authors        | Documents | Citations |
|----------------|-----------|-----------|
| zhang d.       | 4         | 46        |
| von rueden c.  | 3         | 238       |
| chilenski s.m. | 2         | 55        |
| feinberg m.e.  | 2         | 55        |
| perkins d.f.   | 2         | 55        |
| sun l.         | 2         | 29        |
| wang x.        | 2         | 29        |
| li j.          | 2         | 77        |
| wu j.          | 2         | 6         |
| mulyani s.r.   | 2         | 7         |

#### 4.2 Bibliometric Analysis:

##### 4.2.1 Co-authorship and country:

The main emphasis of the country co-authorship analysis was examining an international level of cooperation. It gave analysts a thorough grasp of the

composition of those nations' contributions to the topic in question [16]. For this analysis, two documents and ten citations were considered a minimum requirement for each nation, making it easier to conduct a network analysis of the most cooperative nations that publish studies on leadership in co-operatives. Accordingly, each chosen nation must have at least two articles and ten citations. Additionally, 33 of the 58 nations included in the research were eliminated since they had no connections to other countries. Figure 3 shows the top 10 collaborating nations. The total number of papers produced by writers through international collaboration is the definition of the overall link strength. In other words, the nation that collaborates the most frequently displays high numbers for overall connection strength.

Figure 4 displays a map of the nations that have contributed to the publication of works on leadership in co-operatives.

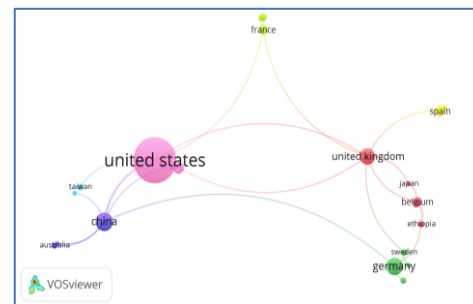


Figure 4. A network analysis of the co-authorship of countries based on document weights.

Table 4. The top 10 collaborating countries are listed in order of link strength.

| Country        | Documents | Citations | Total Link Strength |
|----------------|-----------|-----------|---------------------|
| China          | 13        | 358       | 9                   |
| United States  | 46        | 1930      | 9                   |
| United Kingdom | 11        | 444       | 7                   |
| Canada         | 7         | 375       | 5                   |
| Germany        | 12        | 769       | 5                   |
| Belgium        | 5         | 177       | 4                   |
| France         | 5         | 232       | 4                   |
| Austria        | 2         | 65        | 3                   |
| Ethiopia       | 3         | 299       | 3                   |
| Sweden         | 3         | 110       | 3                   |

##### 4.2.2 Co-authorship and Organization:

For this analysis, criteria are considered a minimum number of documents, and citation is one to get maximum connections between organizations. Out of 362 organizations, 293 meet the threshold, and the most extensive set of related items consists of one cluster with 12 items and 66 links.

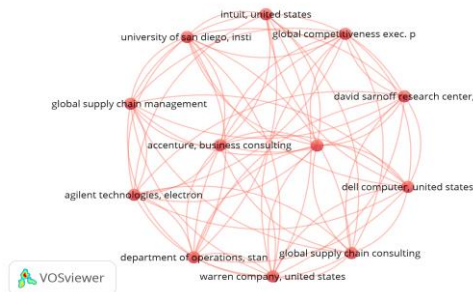


Figure 5. Co-Authorship Network of organizations.

#### 4.2.3 Co-citation and Cited sources:

When two sources are quoted together several times, this is known as co-citation, which also indicates how closely connected the two sources are [17]. In this Co-citation and Cited sources relationship, a minimum number of source citations has been taken as 20. Out of 4315 sources, 27 met the threshold. A total of 4 clusters and 164 links have formed. The total link strength is 7007.



Figure 6. Co-citation and Cited sources network analysis based on document weights.

#### 4.2.4 Co-occurrence and Authors keywords:

A well-known tool in bibliometric analysis is a keyword co-occurrence analysis since it indicates the main subject of the research. This analysis takes a minimum number of occurrences of four keywords. Out of 443 keywords, 8 meet the threshold. These keywords are leadership, cooperation, Co-operatives, collective action, management, governance, Transformational leadership, and Sustainability.

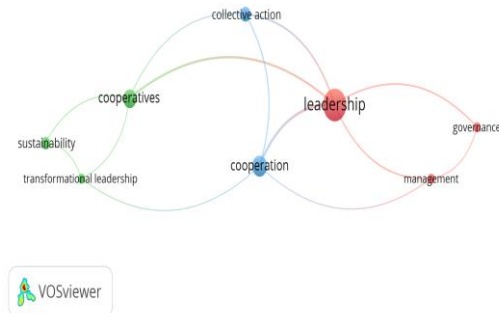


Figure 7. A network analysis of Co-occurrence and Authors' keywords based on document weights.

The result of cluster-wise density analysis shows 3 clusters of 8 items with 13 links and 26 link strengths.

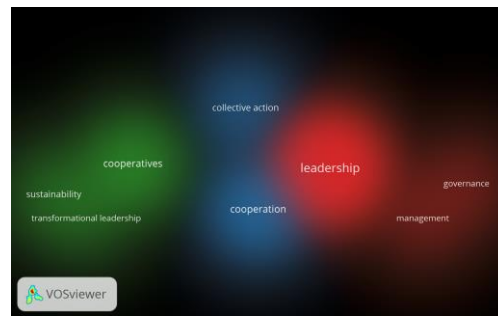


Figure 8. A Cluster wise density analysis of Co-occurrence and Authors' keywords based on document weights.

Table 5. List of Co-occurrence and Authors' keywords in order of the strength of links.

| Keyword                     | Occurrences | Total Link Strength |
|-----------------------------|-------------|---------------------|
| Leadership                  | 41          | 17                  |
| Cooperation                 | 17          | 10                  |
| Cooperatives                | 14          | 7                   |
| Collective Action           | 9           | 6                   |
| Management                  | 4           | 4                   |
| Governance                  | 4           | 3                   |
| Transformational Leadership | 4           | 3                   |
| Sustainability              | 6           | 2                   |

Leadership is a highly occurred keyword (41), having a total link strength of 17, followed by cooperation (17) and co-operatives (14), having link strength of 10 and 7, respectively. While conducting the literature review, it was observed that out of all

highly occurred keywords, "Sustainability" is the word on number five in occurrence and number eight on link strength.

The studies linked with "co-operatives" and other keywords (e.g., cooperation, collective action, leadership, management, governance, transformational leadership) have been in focus for the last few years. This result highlights the significance of focusing on leadership as the potential factor to be studied for impactful work in cooperatives.

#### 4.2.5 Bibliographic Coupling and Documents:

The concept of bibliographic linkage was first proposed by [18]. Two articles are bibliographically related if they both reference the same third work. The more references two papers often cite in their reference lists, the stronger the bibliographic coupling becomes. Using bibliographic coupling, similar articles are grouped. Figure 8 shows a network analysis of documents and bibliographic coupling.

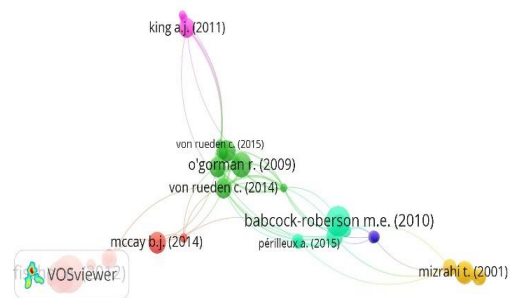


Figure 9. A network analysis of documents and bibliographic coupling.

Using VOS viewer, the criterion for selecting articles is taken as a Minimum number of citations of doc 15. Out of the 136 documents, 56 meet the threshold. The most extensive set of related items is 41, and these 41 studies were grouped into 6 clusters. The clusters are described in short below.

##### 4.2.5.1 Cluster 1:

Cluster 1 comprises 11 publications and is the essential cluster highlighted in red. Most of the articles in this cluster concentrate on the effects of cooperatives or collective action on geographic, socioeconomic, and technological contexts [19], Referenced 365 times, and [10], cited 275 times, are the authors of the publications in this cluster that have received the most citations.

##### 4.2.5.2 Cluster 2:

The green colour indicates this cluster of nine papers. This cluster's main areas of study focus on leadership and managerial role in cooperatives, the theory of leadership in cooperatives, charismatic leadership, and its evaluation in cooperatives. The publications by [20], cited 162 times and received the most citations in this cluster.

##### 4.2.5.3 Cluster 3:

This cluster comprises eight articles and is indicated by the dark blue colour. The primary emphasis of this cluster is the interaction between leadership styles and the work environment. Leader–follower relationship, Charismatic and transformational leadership styles have been explained in this cluster. It also describes women leaders, its advantage, and social performance. Articles by [21], cited 243 times are the most often cited in this cluster.

##### 4.2.5.4 Cluster 4:

This cluster, symbolized by the colour yellow, consists of seven publications. The cluster focuses on inter-organizational collaboration and how it might support overall organizational growth. The two papers with the most citations in this cluster are [22], cited 134 times.

##### 4.2.5.5 Cluster 5:

This cluster consists of three papers and is represented by the purple color. It explains leadership decision-making, leader-based and self-organized communication. [23] have received the most citations in this cluster, with 98 total citations.

##### 4.2.5.6 Cluster 6:

Three articles compensate for this cluster, indicated by the sky blue color. The cluster emphasizes group or team efforts in agriculture, rural tourism, and leadership in these areas. The publications in this cluster that have received the most citations include [24], with 45 citations.

## 5 Discussion

Cooperatives are significant drivers of economic and social factors in countries. Since cooperatives and sustainability has a direct correlation it becomes imperative to understand what contributes majorly to the performance and sustainable growth of the cooperatives. The findings of the ten research questions indicated in the introductory section are summarised in this part together with the results of our current investigation. The results of ten questions are listed below. Findings show that the

research on cooperative leadership has not constantly trended in the last twenty years. After 2010, it slightly picked up momentum except in 2011 and 2019. Overall, from 2010 onwards publication trend has been slightly constant. Throughout the past few years, significant advancements in the field of cooperative leadership have been made. Another finding emphasized the critical contributions to the body of knowledge on cooperative leadership. Out of 136 selected articles by Systematic literature review, we have elaborated to 5 most instrumental research papers shortly. The analysis shows five cited articles along with authors, number of citations, and journals. "The impact of co-operatives on agricultural technology adoption: Empirical evidence from Ethiopia" by [10] is the most highly cited research work. We also found that leading journals publish articles on cooperative leadership. Sustainability, Journal of Rural Cooperation, and Journal of Rural Studies are the top publications for cooperative leadership-related studies. Towards the publication efforts, they highlighted the top contributing countries on cooperative leadership. The study shows that the United States has contributed the highest work, 46 documents with 1930 citations, followed by China, Germany, and the United Kingdom with 13, 12, 11 documents and 358, 769 and 444 citations, respectively. The findings of our bibliometric analysis reveal that Zhang D. (4) is the most contributing author in cooperative leadership with 46 citations. This is followed by von Rueden C. (3), Chilenski S.M. (2), and Feinberg M.E. (2) with citation 238, 55 and 55 respectively. The authors found through this bibliometric snapshot that there is good cooperation among practicing countries and researchers. China and the United States work effectively with other nations, with the United Kingdom, Canada, and Germany following closely after. China has collaborated with Germany, Canada, the United States, Australia, Hong Kong, and others. The United States has collaborated with Taiwan, China, France, and United Kingdom. Our results show the extent of collaboration between authors of different organizations. The results show that 12 organizations collaborated. These are the University of San Diego, Institute, Global Supply Chain Management, and Intuit, the United States, shown in Fig. 5. The result of research question eight highlighted the relationship between co-cited and

cited sources which are grouped into four clusters, as shown in Fig. 6. Ten sources comprise the first cluster, three of which are significantly connected based on the link strength, including Leadership Quarterly, Journal of Applied Psychology, Journal of Personality, and Journal of Social Psychology. Similarly, the second cluster includes eight highly correlated sources based on the link strength of the word Development, Sustainability, and Food Policy. The third and fourth clusters include seven and two sources, respectively Animal Behavior, Nature, Science, Scientometrics, and Journal of Community Psychology are highly correlated sources in terms of co-citations. The findings of research question nine indicate that eight keywords are frequently studied, grouped into three clusters viz; Co-operatives, Sustainability, Transformational Leadership; Collective Action, Cooperation and leadership, Governance, and management. Fig. 8 shows the keyword-wise density of each cluster. The result of research question ten shows the relationship between bibliographic coupling with the documents, which are again grouped into six clusters, as shown in Fig. 9. By studying each cluster, it has been observed that the themes of the clusters mainly focus on the impact of co-operatives and collective actions, leadership and managerial role in co-operatives, the relationship between leadership style and work environment, inter-organizational collaborations, attributes of leadership for successful organization and collective actions in mainly in farming and rural communities. Various clusters highlight the potential to work and explore the research and project activities to give more importance to cooperatives. A study mentions the cooperative in geographic, socioeconomic, and technological contexts. Various types of leadership across the cooperatives is another area that is getting highlighted in the cluster where charismatic leadership has been evolving [15]. Leader-follower relationship, Charismatic and transformational leadership styles have been explained as an outcome of the present research. It also describes women leaders, its advantage, and social performance that signifies gender inclusivity for economic and social progress. While leadership and decisiveness along with emphasizing group or team efforts in agriculture, rural tourism, and leadership in these areas are also been highlighted in this

bibliometric study, the great emphasis on cooperativeness among the organizations has also been stressed in the past studies. Authors have placed greater significance on cooperative organizations and major areas and trends contributing to the studies in the area of cooperatives. We discovered that there is huge potential for working on leadership and its impact on cooperatives that have been ignored by previous studies. This bibliometric review along with cultures brings great insights into trends in cooperative studies.

By taking the assumption from the above findings, there is a scope to do an in-depth study on the relationship between cooperative leadership and sustainability and vice versa. Farmer-producer companies are the buzzing topic of the current discussion, and co-operatives are one form of farmer-producer companies. There is a scope to study the difference between Leadership in co-operatives working as an FPO and Co-operatives as a separate entity. As this study uses only one database, that is, Scopus, and includes the last twenty years' studies, there is scope to do future work, including other datasets and studies, starting from the evaluation of cooperatives.

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