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Bibliometric analysis of research on social entrepreneurship

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ABSTRACT

Purpose — *This study aims to identify research trends and patterns in the field of social entrepreneurship.*

Method — *We employed a descriptive bibliometric analysis methodology to identify publications related to social entrepreneurship between 2020 and 2022. Using the Scopus database, we conducted data collection by utilizing the keyword "social entrepreneurship" and imposing a limit of 200 journal articles with the assistance of Publish or Perish (PoP) software for metadata extraction. To carry out the bibliometric analysis, we utilized the VOSviewer software.*

Result — *The findings from bibliometric mapping conducted with VOSviewer indicate that, within the timeframe of 2020-2022 and within Scopus indexed publications focusing on social entrepreneurship research, a total of 200 articles were gathered, all of which provided complete year information. Notably, the most significant surge in publications was observed in 2020, with a total of 155 articles being published in journals (constituting 65% of the total), while the lowest number of publications occurred in 2022, with just 15 publications (making up 7.5% of the total). The bibliometric mapping exercise revealed the emergence of five distinct keyword clusters: entrepreneurial intention, digital entrepreneurship, entrepreneur, social entrepreneurship, and entrepreneurship.*

Contribution — *This study offers a substantial scholarly contribution to forthcoming directions in entrepreneurship literature, specifically within the realm of social entrepreneurship research. The research approach employed here involves bibliometric analysis, which is recommended as an initial step for identifying areas where future research can make meaningful contributions and uncover sustainable research avenues.*

Keywords: *social entrepreneurship, bibliometrics, VOSviewer, publish or perish*

INTRODUCTION

Social entrepreneurship represents a swiftly emerging concept within the spheres of both business and social domains, with the potential to make valuable contributions to the alleviation of social and environmental issues. It amalgamates business principles with social values, with a primary focus on intricate societal problems. This innovative approach aims to address challenges like poverty, inequality, and environmental concerns in more efficient and sustainable ways. Notably, social entrepreneurship plays a pivotal role in advancing sustainable economic growth by generating employment opportunities, enhancing access to essential services, and mitigating economic disparities.

Moreover, social entrepreneurship serves as a valuable framework for comprehending how this business model can underpin sustainable development efforts. This understanding can greatly benefit the younger generation by raising awareness about prevailing societal issues, encouraging them to view these problems from diverse perspectives, and facilitating the discovery of comprehensive solutions.

Furthermore, social entrepreneurship contributes to the development of entrepreneurial skills among young people, which can be applied across various contexts. It teaches them how to identify business opportunities, formulate sustainable business models, and gauge their social impact. Consequently, social entrepreneurship assumes a significant role in equipping and nurturing the younger generation, enabling them to devise innovative solutions to social and environmental challenges, while also enhancing their skills to foster sustainable development and improve overall societal well-being.

The term "social entrepreneurship" denotes a widely practiced approach that applies business methodologies to tackle social issues. Despite the increasing number of empirical studies dedicated to social entrepreneurship (Germak & Robinson, 2014), the concept of entrepreneurship has undergone a noteworthy transformation with the emergence of social entrepreneurship. This innovative concept, which amalgamates business objectives with the pursuit of positive social impact, has assumed a central role in addressing urgent social and environmental challenges. The ongoing expansion of social entrepreneurship is likely contingent on three key factors (Idris & Hati, 2013).

Social entrepreneurship involves individuals or groups who primarily aim to create specific social value and pursue this objective through various strategies (Peredo & McLean, 2006). Interest in social entrepreneurship extends beyond

practitioners and academics; it also encompasses a variety of stakeholders committed to effecting positive societal change.

Research on social entrepreneurship highlights a notable strength, which is the decentralization of local social entrepreneurs capable of addressing issues within the social entrepreneur community (Frank & Shockley, 2016). Additionally, research on social entrepreneurship offers a more profound understanding of this phenomenon in developing countries (Ghalwash et al., 2017). Multiple studies on social entrepreneurship have been conducted and serve as valuable resources for this research, facilitating the identification of prior investigations and aiding in the mapping of potential areas for further study.

A profound way to gain deeper insights into the trends and advancements within the realm of social entrepreneurship is through the application of bibliometric analysis. This methodology encompasses the systematic collection and examination of quantitative data derived from published literature, including the exploration of citation networks between articles. Bibliometric analysis is a potent tool for uncovering extensive collaboration among authors and institutions (Ospina-Mateus et al., 2019). It affords a comprehensive understanding of how the body of literature pertaining to social entrepreneurship has evolved over time, identifies the key contributors among authors and researchers, and elucidates the interconnectedness of pivotal concepts within a broader knowledge framework.

Bibliometric analysis is widely recognized as a robust approach for exploring and scrutinizing substantial volumes of scientific data (Donthu et al., 2021). Moreover, bibliometric indicators possess the potential to gauge global impact, as exemplified by interviews with acknowledged experts (Nederhof et al., 1989). The utilization of bibliometric mapping holds substantial promise as a tool for both exploration and data collection that can greatly inform researchers (Buter & Noyons, 2001).

In light of the aforementioned context, this research will delve into a bibliometric analysis conducted on the literature pertaining to social entrepreneurship, utilizing esteemed databases such as Scopus. Scopus is analogous to a bibliographic data collection tool that visualizes evolving trends, facilitating effective comparisons through keywords (Thornley et al., 2011). It serves as an abstract reference database and indexing platform encompassing scientific literature, including scholarly journals, conferences, and diverse literature across multiple disciplines. Managed by Elsevier, Scopus stands as one of the largest and most renowned databases for global scientific research. Scopus encompasses various types of scientific publications, including academic

journals, conference proceedings, and books. It aids researchers and academics in accessing the latest and pertinent literature in line with their respective scientific fields.

Scopus is instrumental in measuring the research performance and scientific productivity of individuals, research groups, institutions, and even nations. This is achieved through metrics such as citation counts, h-indices, and other performance indicators. Scopus also contributes to the evaluation of the quality and impact of scientific journals, employing metrics like CiteScore, SCImago Journal Rank (SJR), and Source Normalized Impact per Paper (SNIP). These metrics guide researchers and publishers in journal selection for publication purposes and assist readers in identifying pertinent journals.

Scopus offers a sophisticated search functionality, enabling users to locate research relevant to specific keywords, article titles, author names, and topics. While Scopus proves to be an invaluable tool, it is essential to remember that performance indicators, such as citation counts or journal rankings, do not constitute the sole measures of research success. Additionally, access to literature may be restricted by institutional subscriptions or other constraints.

Hence, the primary aim of this investigation is to track the evolutions and tendencies within social entrepreneurship research across a specific timeframe. Additionally, it seeks to pinpoint the most impactful contributions made by researchers, offering a foundation for exploring novel research topics in the field of social entrepreneurship that have yet to be explored or published.

METHOD

The chosen research methodology for this study involves employing bibliometric analysis to examine data on social entrepreneurship publications spanning the years 2020 to 2022, with a limitation set at 200 articles. Data collection is executed using the Publish or Perish 8 application to identify Scopus indexed articles. This bibliometric analysis encompasses various components, including authorship, publication year, journal sources, article titles, keywords, abstracts, citation counts, h-indices, co-citations, and more (Kuswadi & Wijaya, 2023).

The overarching objective of bibliometrics is to elucidate the process of written communication and its distinctive attributes, while also portraying the trajectory of its evolution in a descriptive manner. This involves quantifying and scrutinizing diverse aspects of communication (Royani & Idhani, 2018). Through the utilization of bibliometric analysis tools, this study aspires to offer a deeper understanding of the growth and dynamics of the field of social

entrepreneurship, as well as the trends within research in this domain. The findings of this research will serve as valuable insights for academics, practitioners, and decision-makers with an interest in the pivotal role of social entrepreneurship in driving substantial social transformation.

For the visualization of bibliometric networks indexed by Scopus, the software tool used is VOSviewer. VOSviewer is a widely recognized software application developed by the Center for the Study of Science and Technology at the University of Leiden, Netherlands. It is commonly employed for constructing and visualizing bibliometric networks. For instance, it has been used to perform bibliometric analysis on VR-assisted therapy using data from the Web of Science core collection (Liu et al., 2022). This software serves various functions, such as conducting bibliometric analyses, identifying the most frequently referenced works within specific disciplines, detecting research topics with potential for further exploration, and more (Effendi et al., 2021).

When it comes to mapping the development of research publications based on co-authorship, VOSviewer plays a crucial role in revealing correlations and relationships among prominent researchers (Zakiyyah et al., 2022). Notably, the functionality of VOSviewer proves especially valuable in presenting extensive bibliometric maps in a comprehensible format (Van Eck & Waltman, 2010). Furthermore, the results generated by VOSviewer enhance visualization clarity and user-friendliness (Markscheffel & Schröter, 2021).

In VOSviewer, various types of analyses are available (Zakiyyah et al., 2022), encompassing:

a) Co-authorship analysis: This examination delves into an author's collaborative work with other researchers. Subsequently, VOSviewer generates a visual representation that includes the author's name, affiliated organization, and country of origin.

b) Co-occurrence analysis: This analysis unveils the bibliometric connections between keywords, presented in a visual format.

c) Citation analysis: This facet showcases the interlinking of documents when they reference other articles that have been similarly examined. It serves the purpose of illustrating citations among documents and can also identify instances of self-citation by authors. The visual model encompasses the examined document, the journal, the author, the affiliated organization, or the country.

d) Bibliographic Coupling analysis: This type of analysis illustrates the proximity of related documents by examining their shared references and visualizes the network created when documents share the same sources.

The visualization models include the examined documents, journals, authors, affiliated organizations, or countries.

e) Co-citation analysis: This analysis visualizes the references utilized by the observed or tested document. References are connected if they are cited within the same article. For instance, if article X cites both references 1 and 2, then references 1 and 2 will be linked. Similarly, if article Y references references 1 and 5, in addition to reference 2, reference 1 will be connected to reference 5 as well.

VOSviewer employs two distinct counting methods: full counting and fractional counting. Full counting calculates based on the documents under examination, while fractional counting takes into account the influence of multiple co-authors in a given document. When analyzing title and abstract data, VOSviewer trims words from the title or abstract and then presents the associations between these word segments or terms visually. Additionally, VOSviewer offers a thesaurus feature capable of harmonizing various names or terms in cases where document terminology may be inconsistent. Collaboratively, VOSviewer and CiteSpace contribute to a more comprehensive understanding of research trends and facilitate future developments for both scholars and practitioners (Ding & Yang, 2020). VOSviewer excels in creating impressive visualizations and can import and export data from multiple sources (Moral-Muñoz et al., 2020).

The obtained data is stored in RIS format (Research Information System Citation File). The subsequent step involves saving these RIS format documents in Mendeley's file manager and populating the blank keyword fields for up to 200 documents. Once 200 fully documented entries with keywords are collected and saved, the next phase involves inputting them into VOSviewer 1.6.19 software to generate visualizations depicting network patterns and inter-bibliometric relationships. These visualizations take the form of network visualizations, overlay visualizations, and density visualizations.

Bibliometric analysis refers to the application of statistical and mathematical methods to analyze literature, encompassing books, journals, online publications, and other forms of communication media (Tambunan, 2013). The results of this mapping endeavor serve as valuable resources for conducting precise content analysis based on parameters such as researcher names, publication years, researcher productivity, and emerging trends in social entrepreneurship research. In this study, bibliometric analysis was employed to scrutinize author collaboration in the field of social entrepreneurship research and to explore bibliometric relationships through keyword co-occurrence analysis.

RESULT AND DISCUSSION

The development of research publications in the realm of social entrepreneurship within the period of 2020 to 2022, as derived from the Scopus database through the utilization of the Publish or Perish software, reveals a somewhat variable trajectory. Notably, it is evident that within academic circles, Publish or Perish has been instrumental in assessing and enhancing academic careers, whether for advancement to functional roles or progression to administrative positions (Van Dalen, 2021).

Out of the total publications cataloged in Scopus, the bibliometric analysis of social entrepreneurship research development within Scopus was conducted using VOSviewer, encompassing a total of 200 documents. The zenith of published articles on the subject of social entrepreneurship was observed in 2020, with a remarkable 155 publications accounting for 65% of the total. Conversely, the nadir of publications occurred in 2022, comprising just 15 publications, equivalent to 7.5% of the total.

Table 1. Development of research publications in the field of social entrepreneurship

Year of Publication	Number of Documents	Percentage
2020	130	65
2021	55	27.5
2022	15	7.5
Number of Publications	200	

Source: Processed data (2023)

The analysis conducted in this research encompasses two distinct types of bibliometric analysis: co-authorship analysis and co-occurrence analysis, both employing the full counting method. Subsequently, the outcomes of this analysis, facilitated by VOSviewer, were employed to generate mapping illustrations that incorporate research keywords. These mapping visuals are constructed based on the keywords extracted from journal articles indexed in Scopus.

Utilizing VOSviewer 1.6.19 for visualization, the results yielded three distinct visualization categories: network visualization, overlay visualization, and density visualization. These visualizations were generated using a minimal threshold of one keyword out of a pool of 215 keywords, thereby fulfilling the criteria for all three visualization categories.

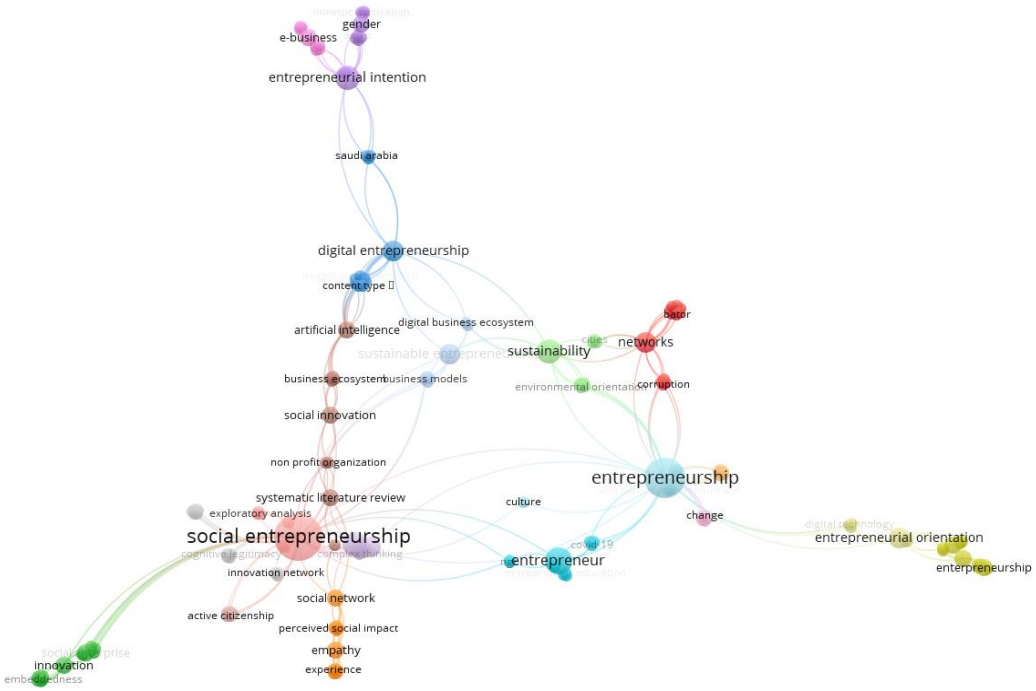
Development of social entrepreneurship publications based on keywords

After the dataset has been compiled and stored in the RIS (Research Information Systems) format using the Publish or Perish 8 application, it undergoes further

analysis using a different application. The dataset is initially formatted into RIS using the Publish or Perish 8 application. Subsequently, the dataset is subjected to analysis utilizing the VOSviewer application, specifically employing the data option 'generate a map based on bibliometric data.' The objective here is to create a network or interrelation of terms based on bibliometric data. The exploration of term fields or terms is grounded in the analysis of keywords. The chosen calculation method for the dataset is full counting, ensuring that calculations align with research pertinent to the field of social entrepreneurship. The minimum requirement for keyword occurrences is set at one document.

Bibliometric analysis involves the creation of visual representations, such as networks, overlays, and densities. The primary objective is to elucidate the bibliometric connections among articles or online publications based on the downloaded metadata. This bibliometric network is composed of circular nodes that signify keywords, while the connecting lines or edges between nodes represent the relationships between pairs of keywords. The process of bibliometric analysis mapping using VOSviewer software is mutually supportive, with each aspect complementing the others. Moreover, clustering is utilized to provide an overview or insight into bibliometric grouping.

Figure 1. Network visualization of shared events



Source: VOSviewer (2023)

Figure 1 presents a visual representation of the co-occurrence network, illustrating the relationships between keywords within the domain of social entrepreneurship research during the period from 2020 to 2022. Among the 200 articles cataloged in Scopus, they can be categorized into five major clusters, distinguishable by the color of the nodes associated with each keyword group.

Cluster 1, represented in red, encompasses terms directly related to the study of social entrepreneurship, including systematic literature review, explanatory analysis, non-profit organization, social innovation, Buddhist entrepreneur, review, and citizenship.

Cluster 2, symbolized in purple, revolves around the theme of entrepreneurial intention, incorporating keywords such as learning by doing, role models, entrepreneurial passion, e-business, e-entrepreneurship intention, self-perceived creativity, entrepreneurship education, gender, intrinsic motivation, and social entrepreneurial intention.

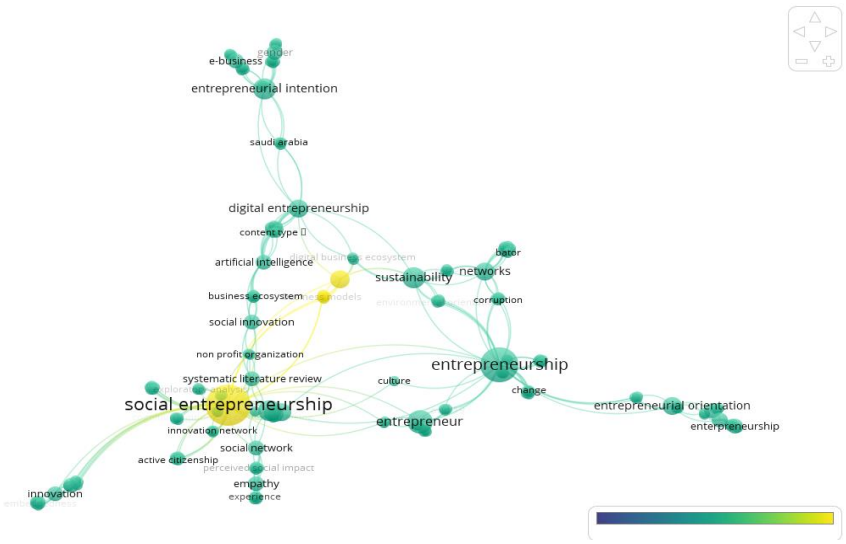
Cluster 3, denoted in light blue, focuses on entrepreneurship, with terms like entrepreneurial, venture life, ecosystems digitalization, entrepreneurial innovation, covid 19, enterprises, entrepreneur education, and culture.

Cluster 4, identified in dark blue, pertains to digital entrepreneurship and includes keywords such as digital business ecosystem, sustainable entrepreneurship, Saudi Arabia, negative relationship, and business models.

Cluster 5, represented in green, centers around entrepreneurial orientation and comprises terms like digital technology, entrepreneur personality, institution, culture values, SMEs, government regulation, entrepreneurship, research agenda, failure, and systematic review.

Following the process of mapping and categorizing social entrepreneurship terms through network visualization, the subsequent phase involves mapping and categorizing the trends in social entrepreneurship research by considering the historical evolution or the years of research publication.

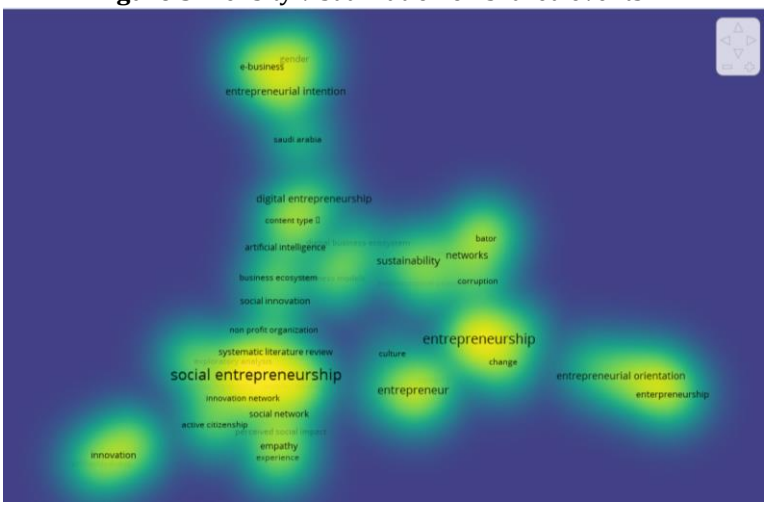
Figure 2. Overlay the visualization on shared events



Source: VOSviewer (2023)

The visual outcomes derived from the Overlay visualization, as depicted in Figure 2, serve as a valuable resource for discerning and appraising the cutting-edge developments in the realm of social entrepreneurship research undertaken during the period spanning from 2020 to 2022. Employing bibliometric analysis facilitated by Publish or Perish 8 and imported into VOSviewer 1.6.19 software, this process generates an Overlay visualization. Within this visualization, the colors assigned to nodes correspond to keywords and denote the respective years of their publication. For instance, the keyword 'social entrepreneurship' is represented by a yellow node.

Figure 3. Density visualization on shared events



Source: VOSviewer (2023)

Subsequently, the bibliometric analysis employs density visualization, as depicted in Figure 3. This visualization technique allows us to observe regions with high density where one node is closely connected to other nodes. The level of saturation, particularly in the number of keywords highlighted in yellow, signifies that the field is a well-explored topic that has garnered extensive research attention and is indexed in Scopus, exemplified by the keyword 'social entrepreneurship.' Conversely, a node marked with a darker color indicates that the topic has not received substantial research focus, thereby presenting opportunities for further investigation in that area. The utilization of VOSviewer for network density and visualization aids in the identification of dominant literature themes and, conversely, areas that have received relatively limited research attention (Vadalkar et al., 2021).

Development of social entrepreneurship publications based on authors

The outcomes of VOSviewer data processing analysis, specifically employing the co-authorship analysis type, are presented in the table below as Table 2:

Tabel 2. List of social entrepreneurship research authors

Number	Author Name	Document
1	Abddelfattah,f	1
2	Adro,f.d	1
3	Al-mamary,y h s	1
4	Audretsch,db	2
5	Baranauskas, g	1

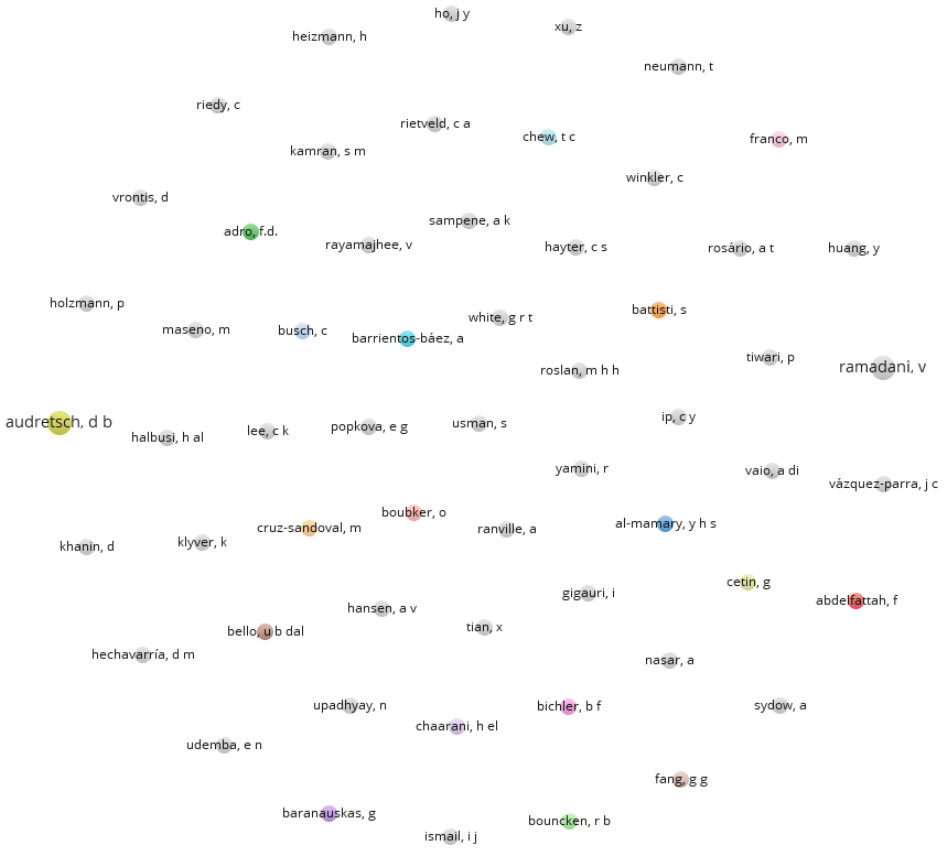
Source : VOSviewer (2023)

Table 2 provides insights into the publication history of 58 authors who have engaged in research related to social entrepreneurship. Notably, the majority of these authors, numbering 58, have contributed to just one article each, with the exception of Audretsch,db, who has authored two articles. For each of these 58 authors, the total strength of their co-authorship connections with other authors has been evaluated. Among these authors, those with the most substantial total link strength have been identified and selected for further analysis.

The dataset was initially converted into the RIS (Research Information Systems) format using the Publish or Perish metadata. Following this, the dataset was enriched by completing keyword entries using the Mendeley reference manager. Subsequently, the dataset underwent analysis through the VOSviewer application, utilizing the data option 'generate a map based on bibliographic data.' The calculation method employed for the dataset was full counting, ensuring that calculations were aligned with authors who have engaged in social

entrepreneurship research. Each author was considered for up to two documents, and the resulting mapping visualization focused exclusively on authors who had established connections with other authors.

Figure 4. Network visualization of co-authorship

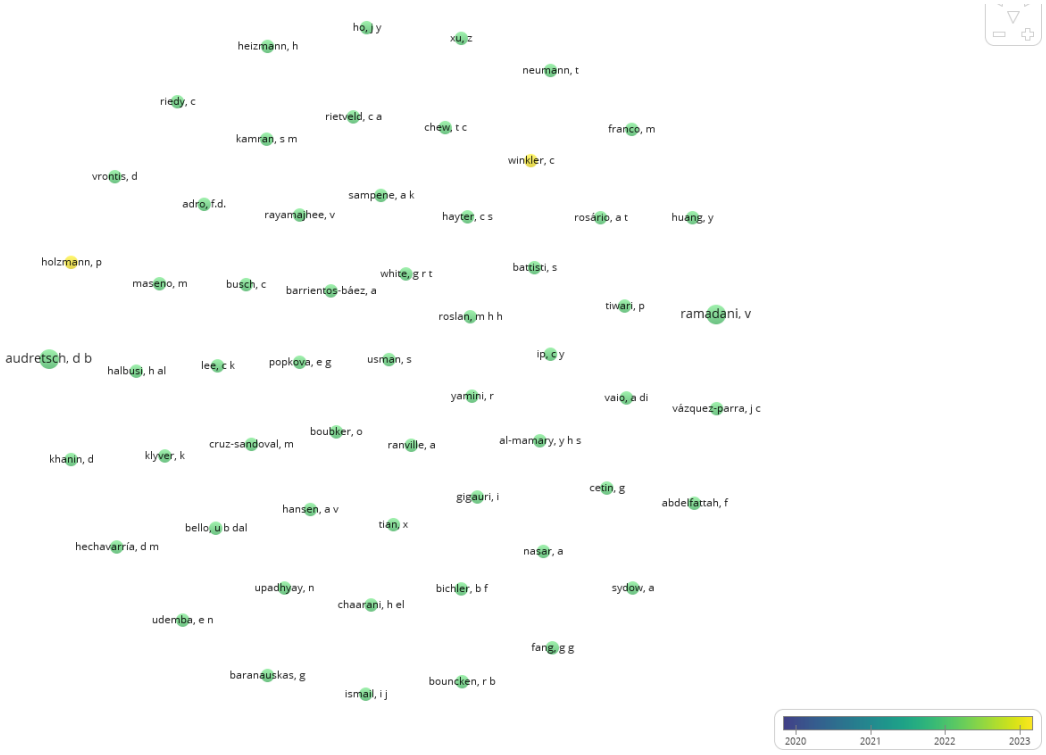


Source: VOSviewer (2023)

Figure 4 presents a network visualization of co-authorship, featuring nodes (represented as circles) that denote authors or researchers and edges (represented as connections) symbolizing the relationships among these authors or researchers. The absence of edges connecting certain nodes signifies the absence of correlations or connections between authors in the domain of social entrepreneurship research. This bibliometric analysis focuses on authors and their collaborations.

The results of the network visualization depicted in Figure 4 indicate that there is limited collaboration between authors, with the exception of Audretsch, who has contributed to two articles related to social entrepreneurship.

Figure 5. Overlay visualization of co-authorship



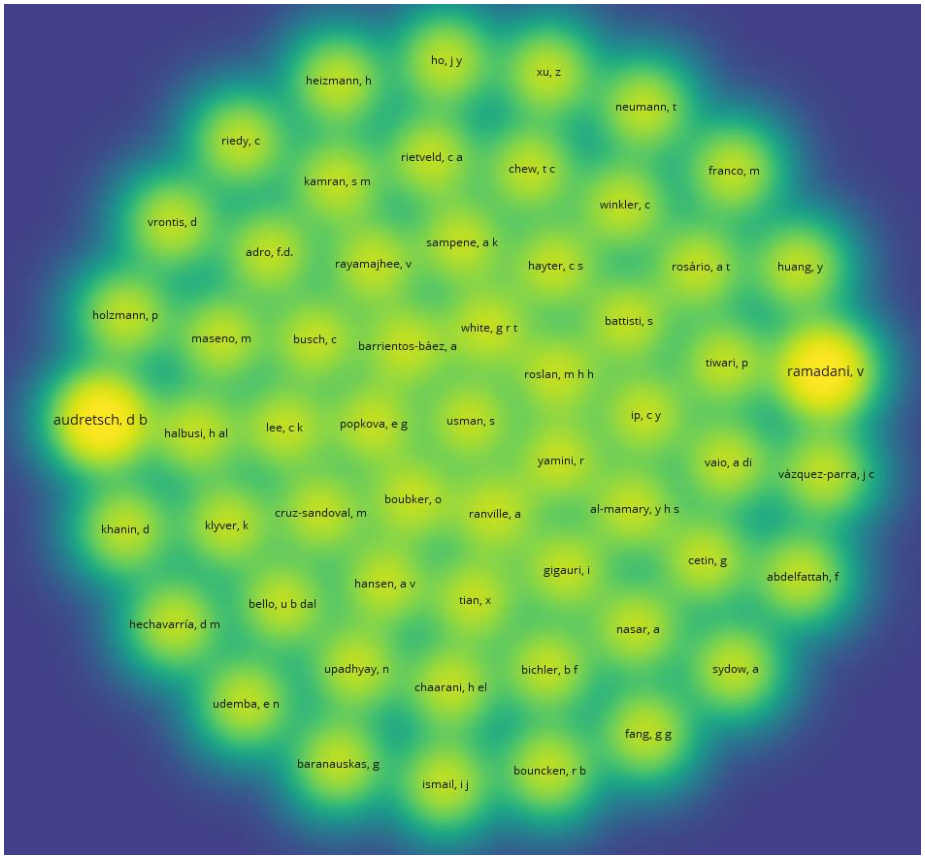
Source: VOSviewer (2023)

Figure 5 depicts an Overlay visualization that charts the historical trajectory of authors' research involvement in the realm of social entrepreneurship. This visualization features nodes with diverse colors and lacks interconnections among researchers. The node colors indicate research conducted during distinct time periods, with darker colors signifying research carried out in earlier years. In this particular figure, the deepest hue (purple) corresponds to the year 2020, while the lightest shade (yellow) represents 2022.

From this analysis, the following observations can be made:

1. Audretsch and Ramadani's research appears in a darker shade compared to the visualization of Hollmanz and Winkler's research. This distinction indicates that Audretsch's research dates back to 2020, while Hollmanz and Winkler's research is more recent, having been published in 2022.
2. The research nodes corresponding to Audretsch and Ramadani are larger than those representing other authors' research. This size disparity suggests that Audretsch and Ramadani's research is frequently cited as a point of reference in the field.

Figure 6. Density visualization of co-authorship



Source: VOSviewer (2023)

Figure 6 reveals that articles authored by Audretsch and Ramadani have garnered the highest number of citations. From the findings of the density visualization displayed in this Figure, it becomes evident that there is a concentration or focus on certain nodes, signifying that the community of researchers in the realm of social entrepreneurship maintains interconnected relationships. Furthermore, the degree of node saturation in density visualization is indicative of the extent to which studies reference and cite the work of other authors. Audretsh and Ramadani's research, which exhibits the most intensely colored node in terms of density, suggests that these authors conducted their research while referencing several other studies. This indicates a collaborative approach in the field of social entrepreneurship research.

CONCLUSION

The research mapping conducted in the realm of social entrepreneurship relies on co-occurrence analysis (keywords) and co-authorship, employing the full counting method through bibliometric analysis using VOSviewer 1.6.19 software, encompassing a dataset of 200 articles indexed in Scopus. The outcomes of this mapping, utilizing network visualization, overlay, and density analyses, provide insights into the developments in social entrepreneurship research from 2020 to 2022.

During this period, the field of social entrepreneurship research exhibited fluctuating patterns of publication. A total of 200 articles, complete with year information, were collected from Scopus. The highest surge in publications was recorded in 2020, with 155 articles published in journals (constituting 65% of the total), while the lowest point occurred in 2022, with only 15 publications (7.5% of the total). The research landscape in social entrepreneurship revealed new findings, particularly in the realms of social entrepreneurship and digital entrepreneurship collaborations.

Through mapping the publications pertaining to social entrepreneurship using co-occurrence analysis (keywords), five prominent clusters were identified: social entrepreneurship, entrepreneurial intention, digital entrepreneurship, entrepreneurial orientation, and entrepreneurial intention. This bibliometric analysis not only sheds light on existing research but also highlights areas that remain unexplored within the domain of social enterprise. To enhance the sustainability of future research endeavors, it is recommended to incorporate the country of origin as a factor and delve into topics related to gender roles in the context of social entrepreneurship.

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