SOCIAL ENTREPRENEURSHIP: A BIBLIOMETRIC ANALYSIS USING R

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ABSTRACT

This research seeks to evaluate social entrepreneurship through bibliometric analysis. The study undertakes the effort to fully document the composition, number, trends, authorship, and source influence of knowledge as well as its growth. This research focuses on a searchable Scopus database of 245 articles that have been compiled and analyzed via R Studio from a vast number of studies over the last 17 years and are the most relevant. Preliminary findings show that between 2005 and 2022, there was a growth in the number of articles published related to social entrepreneurship. By performing a bibliometric study with R, it is possible to identify the subject's most relevant journals, authors, and publications. The study found that by condensing the most crucial elements of social entrepreneurship into a single concept, an innovative research topic can be formed, resulting in fresh research opportunities in the broad field of social entrepreneurship.

INTRODUCTION

Existing knowledge of the Social Entrepreneurship

Societal entrepreneurship is distinct from traditional kinds of entrepreneurship in that its major purpose is to accomplish unmet social problems and needs. The goal of such businesses is to generate social value (Beugré, 2017). It is urgently necessary to make contributions to theory and practice because

social entrepreneurship is still a fresh field to study and its theoretical foundations have not been extensively explored (Austin et al., 2006). This may serve as an argument for why there is no unified definition of social entrepreneurship among academics. Even some academics assert that social entrepreneurship is still a contentious idea, making it nearly impossible to establish a single definition that applies to all participants in the concept (Choi & Majumdar, 2014). There is some discussion about whether social entrepreneurship is truly distinct from traditional entrepreneurship. Besides, as many scholars have attempted to define social entrepreneurship, there are likely just as many definitions of it. This has prompted some academics to claim that social entrepreneurship lacks a clear definition and has evolved into something like a broad category that encompasses a wide range of socially good activities (Martin, 2007). Focusing on social needs sets social businesses apart. However, some social entrepreneurship researchers contend that any meaning of social entrepreneurship must incorporate both categories because the ideas of innovation and profitability are frequently used in conceptions of entrepreneurship (Santos, 2012). The majority of social entrepreneurship experts concur that the term "social" refers to social entrepreneurs who create products and services that specifically meet fundamental human needs that are still unsatisfied by the current systems of economy and society (Seelos & Mair, 2005). Hence, a social profit is a solution to a social issue that affects a target group or society as a whole rather than a single individual or particular organization (Thompson, 2002).

Limitations and gaps

Social entrepreneurs, proponents of social entrepreneurship, and any stakeholders who may be interested must be tenacious enough to fight for the cause. This is because there aren't many case studies or histories of successful social entrepreneurs, according to studies conducted over time (Maria, 2017). Social entrepreneurs must simultaneously gain the confidence of investors, talented individuals, investors, stakeholders, and key players if they hope to influence people's perceptions. It is challenging today to demonstrate the responsibility and feasibility of social business models since there is so little case history (Maria, 2017). Social entrepreneurs need to take more risks and refuse to comprehend the limitations of current sources of funding. The context of resource limitations and the resulting heightened competitiveness have influenced how social entrepreneurship operations have been carried out. As a result, the field is currently undertaking a professionalization process to reduce financial dependence on donations to attain economic security and continue to accomplish its humanitarian mission (Perrini & Vurro, 2006). The last eighteen years have seen a rise in social movements that support social entrepreneurship. Numerous studies indicate the beneficial effects of social entrepreneurs in optimizing their impact on society by overcoming the social needs of individuals disregarded by other organizations (McMullen, 2011). Consequently, combining business and social value into an organization is a problem for many practitioners and is currently a top concern for social entrepreneurs. According to, Weerawardena & Mort (2006), there is no agreed-upon definition since social entrepreneurship is a newly developing and ill-defined concept. Organizational structures for commercial and social entrepreneurs are distinct from one another. However, the legal framework that prevents social entrepreneurship from being profitable has been a frequent topic of discussion among many academics. This dispute focuses on whether the social objective of social entrepreneurship prohibits it from taking part in legal entities other than non-profit organizations so that it cannot transfer profits to investors.

RESEARCH QUESTION

The usage of bibliometric, text-mining, and visualization technologies is used to illustrate the review activities and process using the research questions (RQ) below (i.e., R studio). This paper focuses on 4 specific research questions as shown in Table 1.

Table 1 Research Questions (RQ)

No	RQ	Analysis Procedure
1	What is the current state and trend of publication in Social Entrepreneurship?	• Document Type • Source Type • Total number of contributors • Number of publications by year/country
2	What are the most influential contributors to Social Entrepreneurship?	• Most influential authors • Most relevant sources • Most influential source title
3	What are the most influential article, authors, and sources on Social Entrepreneurship?	• Highly cited documents • Author Impact • Lotka's Law • Source Impact • Bradford's Law • Co-occurrence network
4	How the theme of the publication has evolved in Social Entrepreneurship?	• Thematic Map • Trend Topic • Word Dynamic • Word Cloud • Tree Maps

This article continues with a more in-depth discussion and analysis after briefly outlining the fundamental definition of the social entrepreneurship topic. The steps portion of this research describes the methods utilized in this inquiry, including the data search procedure, data collecting, extraction, and analysis. The study's results are explained in the following sections. This paper's analysis and conclusion sections summarize the results, go into great detail about the major findings and the related implications, and discuss the study's limitations and potential upcoming steps.

LITERATURE REVIEW

Social Entrepreneurship

Today's burgeoning field of social entrepreneurship is marked by gaps in the literature, a shortage of operational definitions consensus, a dearth of conceptual frameworks, and a lack of professional experimental observations (Mair & Marti, 2006; Nicholls, 2006). Different authors have outlined social and corporate entrepreneurship in different ways. Austin et al., (2006) assert that what distinguishes social entrepreneurship from many other types of entrepreneurship is the purpose a business is founded. However, according to Cukier et al. (2011), sustainable entrepreneurship concentrates on activities with a financially lucrative objective, while social entrepreneurship focuses mainly on activities with creating value for society. Several academics have tried to categorize "social enterprise" and "social entrepreneurship," despite major variations (Defourny & Nyssens, 2008). Moreover, universities and business colleges all over the globe are currently participating in a wide range of educational courses on social entrepreneurship and social enterprise has also inspired research interest (Hulgrd, 2010). Previous studies haven't yet produced a clear and uniform concept of social entrepreneurship. Furthermore, there is no previous study on the subject seems to have been able to formulate a comprehensive definition of social entrepreneurship. Werawardena and Mort (2006) claim that a review of the literature from many fields shows it to be disjointed and devoid of a unifying theoretical framework. Accordingly, Peredo and McLean (2006) concluded that social entrepreneurship did refer to the creation of some facet of social value by some people or individuals particularly or in some meaningful way. It wants to pursue this goal through a variety of means, including recognizing and utilizing the chance to generate this value, establishing innovation, acknowledging risk, and refusing to comply with resource

limitations. The foundation of social entrepreneurship is innovation aiming at promoting societal well-being backed by companies (Nicholls, 2006). The term "social entrepreneur" refers to people or organizations that seek significant change through novel approaches to how governments, non-profits, and companies solve pressing social issues (Light, 2006). Table 2 below shows some past studies that have discussed Social Entrepreneurship.

Table 2 Summary of previous studies in Social Entrepreneurship

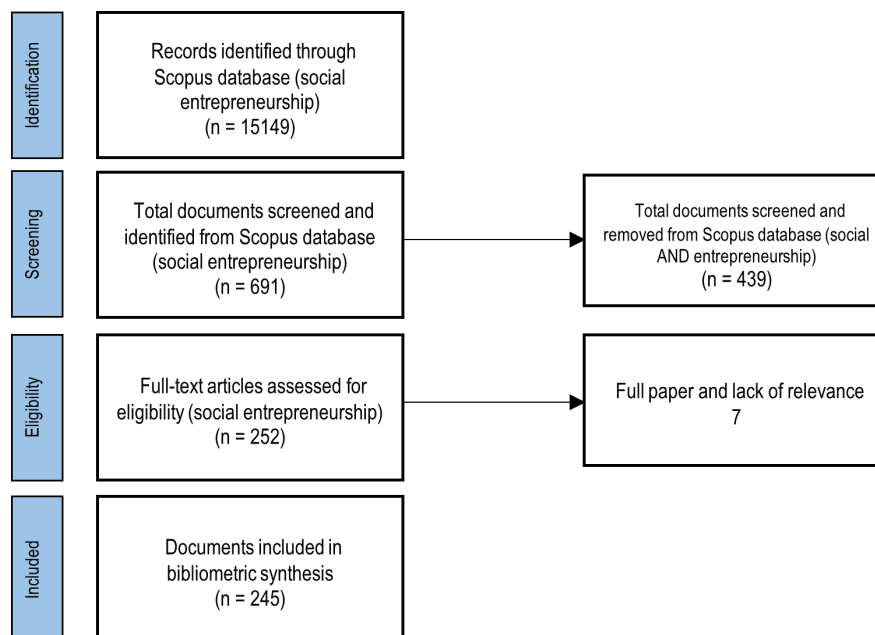| Author	Domain/Search Strategy/ Title	Data Source & Scope	TDE	Bibliometric Attributes
Audretsch, D.B.	Entrepreneurship	Scopus (2005-2019)	37	Co-occurrence of keywords, Citations documents; co-Citation relationships; Bibliographic coupling
Ratten. V	Bibliometric Analysis of Social Entrepreneurship	Scopus (2002-2020)	6	Number of publications, Author, institution, country, Source, and co-occurrence keywords
Hernández - Sánchez, B.R.	Social Entrepreneurs: A Bibliometric Review	Scopus (2016-2022)	3	Type of publication Publications per year Frequency of paper Publication trend Highest citation Productive journals
Biancone, P.P	Social Enterprise: Bibliometric Analysis Using R	Scopus (2019-2022)	1	Frequency of paper Publications per year Highest citation Productive journals Co-citation networks Co-occurrence

METHODOLOGY

Searching Strategy

A collection of organized search phrases serves as a search technique. Search methods will incorporate keyword search concepts for accurate and comprehensive results (Piccarozzi et al., 2021; Salameh et al., 2020). In this study, bibliometric analysis and PRISMA, the suggested reporting item for systematic reviews, were employed (Figure 1). This approach provides a detailed examination of knowledge acquired over time (Visser et al., 2021). This article will utilize bibliometric software to filter and refine bibliographic data, for example by finding relevant articles in databases such as Scopus. This stage involves displaying the data by using the VOSviewer application. Bibliometric analysis can be used to discover and forecast potential future research topics (Paul & Criado, 2020).

Figure 1

The PRISMA diagram that this article used to find, screen, and select articles in the bibliometric review.

Inclusion and exclusion criteria

The findings are initially reviewed for titles and abstracts using a previously set of criteria (i.e. Table 3). Only those papers that had made it beyond the initial screening process were then scrutinized and summarised. Each study is rated according to the number of publications, the prestigious publications, and authors, along with the most well-liked research areas. The objective of this article was to integrate 245 papers from 2005 to 2022 into a thorough database advantage of the wealth of studies on social entrepreneurship.

Table 3 Search Criteria

Scopus Category	Searching criteria	No of article
Topic / Area	Social AND entrepreneurship	15,149
Research years	2005–2022	252
Document Type	All types of publications	245
Language	English	245
Author Name	All	245

Choice of synthesis method (Analysis)

Descriptive analysis was a part of the initial investigation phase. To chart the evolution of publications on social entrepreneurship concepts across periods, this article creates several Excel graphics. Meanwhile, bibliometric analysis methods were applied in the subsequent steps. This methodology employs citations to identify the most significant publications and researchers in a field. Scholarly popularity may also be reflected by other metrics including H- index, total citations, and citations per article. Co-citation analysis may concentrate on journals, authors, keyword co-citations, etc. depending on the findings. This article was able to construct a "web map" from article linkages due to the sample database's use of VOSviewer and R Studio to visualize it.

FINDINGS

Document Profiles

The articles discovered covered the period from 2005 to 2022. Publications didn't begin to become more organized or rise in quantity

gradually and steadily until around 2005. Table 3 shows that there is no annual growth for the 245 total papers taken into account and that there are 14,815 total references used, with an average of 9.486 citations per document. Besides, the plurality of the research conducted in this field is published as articles (81.22 per cent), and then reviews (3.67 per cent).

Table 4 Document Profiles

Description	Results
Main Information About Data	
Timespan	2005:2022
Sources (Journals, Books, etc)	145
Documents	245
Annual Growth Rate %	10
Document Average Age	4.91
Average citations per doc	9.486
References	14815
Document Contents	
Keywords Plus (ID)	291
Author's Keywords (DE)	762
Authors	
Authors	719
Authors of single-authored docs	9
Authors Collaboration	
Single-authored docs	9
Co-Authors per Doc	3.51
International co-authorships %	35.95
Document Type	
Article	199 (81.22%)
Book Chapter	15 (6.12%)
Conference Paper	21 (8.57%)
Note	1 (0.41%)
Review	9 (3.67%)

RQ1: What is the current state and trend of publication in Social Entrepreneurship?

As illustrated in Figure 2, there have been more publications in recent years that deal with the topic of social entrepreneurship. Previous research has given the issue and breadth of social entrepreneurship research a lot of attention, given the number of papers created. Even though there were only a few publications on the subject in the early 2000s, preliminary data from the Scopus database indicates that the subject of social entrepreneurship began to garner increasing interest at that time. However, from 2016 onward, there has been an increase.

Figure 2 shows that only 13 out of 245 publications were successfully published between the years 2005 and 2011. The fact that there are such few articles on the subject may be due to its unpopularity in discussions in the media. The incapacity of academic and corporate participants to understand the significance of social entrepreneurship from a broader perspective may have hampered the discourse. However, the number of articles started to grow from the year 2012 to 2019. The number of publications has since decreased from 2019 to 2020. The onset of the global Covid-19 pandemic may have exacerbated this situation. Despite this, the period from 2019 to 2022 will see the majority of papers published, with 136, or more than half of the total. Most articles are being published during 2022 (44) to be followed by 2019 (37), 2021 (33), and 2020 (22).

Figure 2

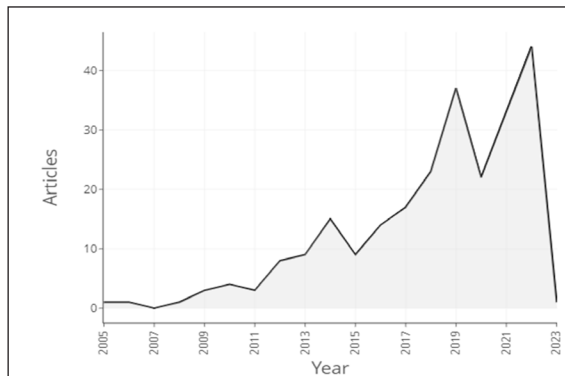Annual Scientific Production (Total published articles from 2005-2023)

Table 5 Average Citation Per Year

Year	N	Mean TC Per Article	Mean TC per year	Citable years
2005	1	6.00	0.33	18
2006	1	6.00	0.35	17
2007	0	0.00	0.00	0
2008	1	9.00	0.60	15
2009	3	17.33	1.24	14
2010	4	95.75	7.37	13
2011	3	51.00	4.25	12
2012	8	26.50	2.41	11
2013	9	14.00	1.40	10
2014	15	11.00	1.22	9
2015	9	11.22	1.40	8
2016	14	9.07	1.30	7
2017	17	7.29	1.22	6
2018	23	10.35	2.07	5
2019	37	6.65	1.66	4
2020	22	4.86	1.62	3
2021	33	2.33	1.17	2
2022	44	4.34	4.34	1

From Figure 2 to Table 5, research is carried out based on the average citation counts in articles associated with the study of social entrepreneurship, both generally annually and per article. The research on this topic was conducted over 18 years, from 2005 to 2023, and was published during that time. According to Table 5, which is shown below, 44 documents, or the majority of the most published articles on the TSR theme in social entrepreneurship research, were released in 2022. This does not prohibit an increase in the number of research projects executed in 2020 compared to the previous year. Moreover, according to the average total number of citations per year, 2010 had the most with an average of 95.75 citations. The study that received the most citations on a yearly average was also cited the most frequently in 2010, with 7.37. This demonstrates that more articles on the topic of social entrepreneurship were published in 2010 than in any other year.

RQ2: What are the most influential contributors to Social Entrepreneurship?

The study concentrated on the most influential authors, the author's production over time, the most influential countries and institutions, and the most influential source title in the field of social entrepreneurship in the second research question. Table 6 showed that the most significant authors and publications were present in the sample database. There are generally five authors who have a significant following: Ahmad (2016; 20120), Rahman Sa (2016; 2020), Abdullah A (2014; 2018), Amran A (2016), and Ismail K. (2017). The authors who had the most citations together are Rahman Sa. and Ahmad Nh., with 40, followed by Amran A., with 27. At the same time, social entrepreneurship is published with help from two new authors, Abdullah A., and Ismail K. The two journals with the most citations are shown in Table 6. Two of them, with a total of 108 and 26 citations, respectively, are Sustainable Entrepreneurship Practices in Malaysian Manufacturing SMEs: The Role of Individual, Organizational, and Institutional Factors and Enhancing the Wellbeing of Base of The Pyramid Entrepreneurs Through Business Success: The Role of Private Organizations. In conclusion, social entrepreneurship focuses on creating sustainable and innovative solutions to social problems, to bring about positive change in society. Social entrepreneurs identify and address social issues, such as poverty, inequality, and environmental degradation, by using entrepreneurial strategies and principles

to achieve their goals. They often operate in the non-profit sector and seek to create both social and economic value, while balancing their mission with financial sustainability. Social entrepreneurship emphasizes the importance of collaboration and partnerships and is driven by a desire to make a difference and create a lasting impact.

Table 6 The most influential authors

Author's Name	Title	Journal/ Proceedings	TC	AF	TCBY	PY
Ahmad Nh	Sustainable Entrepreneurship Practices in Malaysian Manufacturing SMEs: The Role of Individual, Organisational, and Institutional Factors	World Review of Entrepreneurship, Management, and Sustainable Development	13	1.92	3.25	2020
Abdullah A	Factors Influencing Graduates to Start a Business: A Case of Malaysian Public Institution of Higher Learning	Vision 2020: Sustainable Growth, Economic Development, And Global Competitiveness - Proceedings of the 23rd Studies On Entrepreneurship, Structural Change, and Industrial Dynamics	0	1.25	0.00	2014
Abdullah A	Differences In Gender: Does It Exist in Bumiputra Entrepreneurs? 1 - 0.167 2018	Vision 2020: Sustainable Growth, Economic Development, And Global Competitiveness - Proceedings of the 23rd Studies On Entrepreneurship, Structural Change, and Industrial Dynamics	1	-	0.167	2018
Rahman Sa	Enhancing The Well-being of Base Of The Pyramid Entrepreneurs Through Business Success: The Role Of Private Organizations	Social Indicators Research	27	1.92	3.37	2016
Ismail K	University-Based Entrepreneurial Ecosystem: How Graduates Perceive and React?	Proceedings of The 29th International Business Information Management Association Conference - Education Excellence and Innovation Management Through Vision 2020: From Regional Development Sustainability To Global Economic Growth	0	1.33	0.00	2017

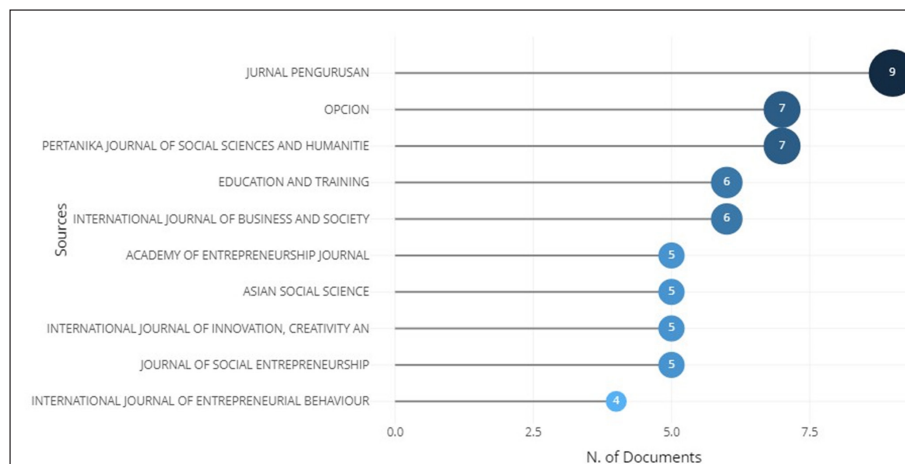Notes: TC=total citations; AF=articles fractionalized; PY=publication year; TCpY=total   citation per year

The most influential journals were present in the sample database, as shown in Table 7. Journals of business and economics have traditionally dominated publishing on social entrepreneurship. The Opcion has the most publications with 6 papers, a 6 h index, and 192 citations. The reason for this is that the journal has been publishing since 2014. "Jurnal Pengurusan", and "Education and Training" have seven publications and 152 and 159 citations, respectively. This study also highlights journals from fields other than business and economics, such as Asian Social Science and Pertanika Journal of Social Sciences and Humanities, with respective citation counts of 43 and 120.

Table 7 The Most Influential Source

No	Journal/Source	PY	TC	NP	*h* index	*g* Index	*m* Index
1	Jurnal Pengurusan	2014	159	7	6	7	0.6
2	Opcion	2014	192	6	6	6	0.6
3	Pertanika Journal of Social Sciences and Humanities	2012	120	8	5	8	0.41
4	Education And Training	2014	152	7	5	7	0.5
5	International Journal of Business and Society	2018	27	5	3	5	0.5
6	Academy Of Entrepreneurship Journal	2009	85	4	3	4	0.2
7	Asian Social Science	2013	43	3	3	3	0.27
8	International Journal of Innovation, Creativity, and Change	2009	54	4	3	4	0.2
9	Journal of Social Entrepreneurship	2014	99	5	3	5	0.3
10	International Journal of Entrepreneurial Behaviour and Research	2019	64	3	3	3	0.6

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index

Figure 3 The most relevant sources

The most prestigious scholarly publications are peer-reviewed, meaning that each contribution has been evaluated before publication by scholars with expertise in the same field as the authors and editors. They should ensure that the researcher is using the correct method, that the work contributes to the field, and that the new material is presented in a known context. Figure 3 shows the 10 most relevant references on the topic of social entrepreneurship. Opcion and Pertanika Journal of Social Sciences and Humanities are two of the most renowned journals in this field and are covered by Pengurusan Jurnal. Peer review during the publication process ensures the journal's accuracy and contribution to relevant sectors, making it relevant.

RQ3: What are the most influential articles and sources on Social Entrepreneurship Highly?

Cited Documents/ Papers

The top 1 per cent of each discipline's researchers, as determined by Web of Science citation records, are recognized in this renowned list as the best in the world. Being listed among the most referenced documents shows that you are a successful and influential academic. Furthermore, the more times a researcher's works are cited, the more well-known and respectable their affiliations with bigger universities become (Martnez et al., 2015). However, several outside factors that don't appear to be directly related to the "quality" of the article's content affect the

total amount of citations an article receives (Fahimifar et al., 2022). Table 8 lists the ten papers and documents on the topic of social entrepreneurship that have received the most citations. One of the most prominent is Hwee Nga Jk (2010), who has 364 (37.1 per cent) total citations, followed by Al-Jubari I (2019), who has 100 (10.2 per cent) total citations. Total citations in other papers range from 49 to 73. In contrast, the subjects covered are rather diverse and not connected to social entrepreneurship.

Table 8 Most cited documents/ papers

Paper	TC	% Cited	TCBY	% TCpY	NTC	% NTC
Hwee Nga Jk, 2010, J Bus Ethics	364	37.1	26.00	21.3	3.80	6.2
Al-Jubari I, 2019, Int Entrep Manage J	100	10.2	20.00	16.4	15.04	24.6
Sandhu Ms, 2011, Int J Entrep Behav Res	100	10.2	7.69	6.3	1.96	3.2
Ndubisi No, 2012, J Res Mark Entrep	73	7.4	6.08	5.0	2.75	4.5
Ahmed T, 2017, Int J Entrep Behav Res	64	6.5	9.14	7.5	8.77	14.3
Maroufkhani P, 2018, J Enterprising Communities	63	6.4	10.50	8.6	6.09	10.0
Othman N, 2012, Educ Train	61	6.2	5.08	4.2	2.30	3.8
Sadiq M, 2022, China Finance Rev Int	57	5.8	28.50	23.4	13.13	21.5
Rahman Sa, 2015, Manage Decis	50	5.1	5.56	4.6	4.46	7.3
Cant G, 2009, J Enterprising Communities	49	5.0	3.27	2.7	2.83	4.6

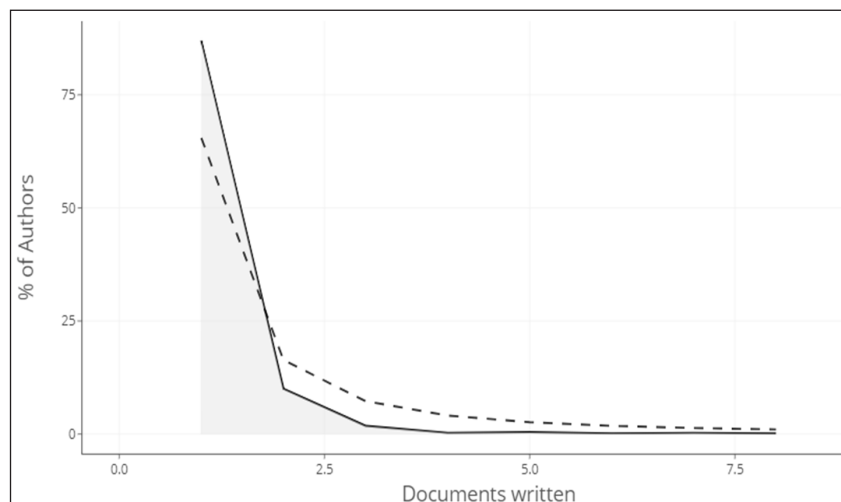*Notes: PY=publication year; TC=total citations*

Author's Impact

Authors with published articles can also be ranked according to the influence they had using the h-Index. The H-index is the most extensively utilized index. If an author has at least h works that have been referenced h times means that the author has an h-index of h. The G articles that have the greatest citations make up the G-Index (Egghe, 2006). By multiplying the H-index by the number of years a researcher has been active, the M-Index is then determined. Based on Table 6, it can be seen that Ahmad Nh and Amran A have the greatest h-index scores, each having six, which indicates a considerable impact. Authors Othman N and Rahman Sa were next, with an h-Index value of 5 and a moderate impact. Othman N as well exhibits the greatest g-index value. Additionally, Ahmad Nh, Amran A, and Yahya S have m-Index values of 0.6, making them the most active authors. Amran A, who has the most citations overall (i.e., the TC), has a total of 192 (19.3 per cent), followed by four writers (Ahmad Nh and Rahman Sa), whom each has 159 (16.0 per cent) and 152 (15.3 per cent) citations. All of this data was generated between the years 2009 and 2019.

Table 9 The 10 most impactful author

Author(s)	h_index	g_index	m_index	TC	% TC	NP	PY_start
Ahmad Nh	6	7	0.6	159	15.9	7	2014
Amran A	6	6	0.6	192	19.2	6	2014
Othman N	5	8	0.4	120	12.0	8	2012
Rahman Sa	5	7	0.5	152	15.2	7	2014
Ayob Ah	3	5	0.5	27	2.7	5	2018
Bagheri A	3	4	0.2	85	8.5	4	2009
Idris A	3	3	0.2	43	4.3	3	2013
Pihie Zal	3	4	0.2	54	5.4	4	2009
Taghizadeh Sk	3	5	0.3	99	10.0	5	2014
Yahya S	3	3	0.6	64	6.4	3	2019

Notes: PY=publication year; TC=total citations; NP=number of publications; h=h-index; m=m index; and g=g-index.
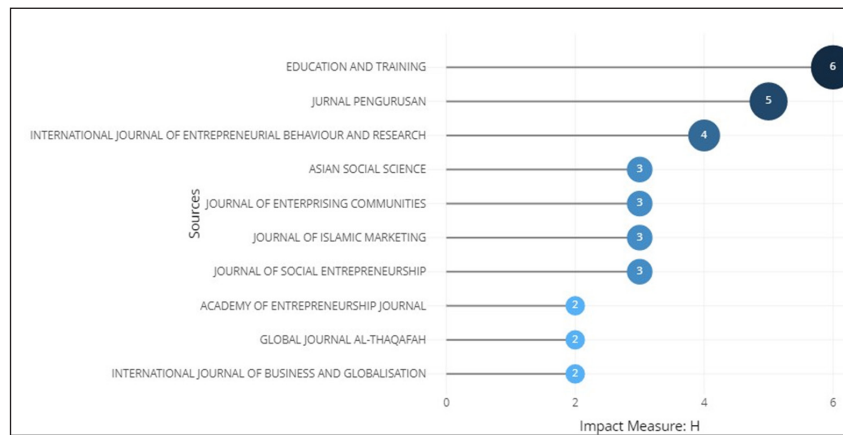
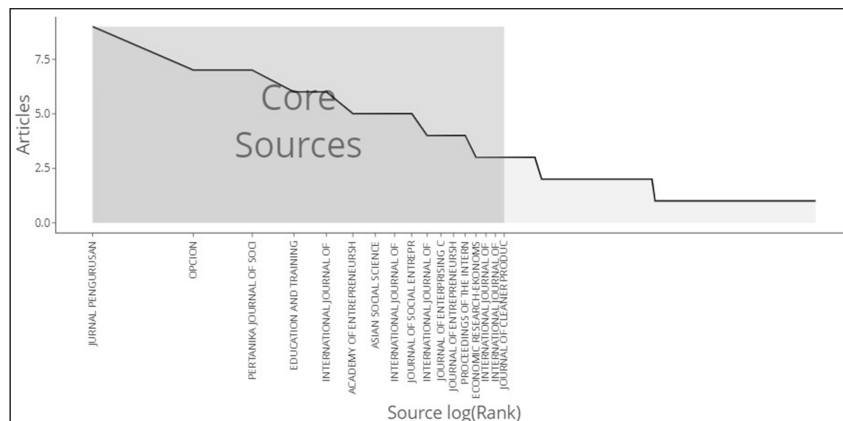**Figure 4** Lotka's La

Lotka's Law

The well-known "inverse square law of scientific creation" is Lotka's law. It assumes that the proportion of authors who publish a set number of papers to those who only publish one article stays constant (Friedman, 2015). In other words, it details how frequently a writer publishes in a particular field (Maz-Machado et al., 2017). Since then, some academics from many fields have examined author output and publishing using Lotka's law (Friedman, 2015). The measured and estimated Lotka distributions are shown in Figure 4. The relationship between the number of contributing authors and the number of papers published is demonstrated in Figure 4 below. Since Lotka's law provides a framework for assessing an author's productivity over time, it is clear that this area of social entrepreneurship is quite dynamic and attracts a lot of interest from academics and practitioners. Knowing the authorship production pattern of social entrepreneurship literature will be valuable for both collective and individual interests.

Source Impact

Journals are not counted solely on their output or content relevance. This article also considers each journal that publishes papers on the topic of social entrepreneurship by calculating the publication's h-index (shown in the blue bar graph). Figure 5 below not only displays the h-Index value attained but also highlights the influence the journal has had through the use of blue. The larger the influence the magazine will have, the darker the blue on the diagram. The Journal of Education and Training is in the top spot with an h-Index of 6, as indicated in the data below, and is highlighted in dark blue. Nevertheless, Jurnal Pengurusan and the International Journal of Entrepreneurial Behaviour and Research are ranked second and third, respectively, with h- Index values of 5 and 4. In terms of journals with h-Index 2, there are three marked in light blue on the figure, indicating the journal's poor impact.

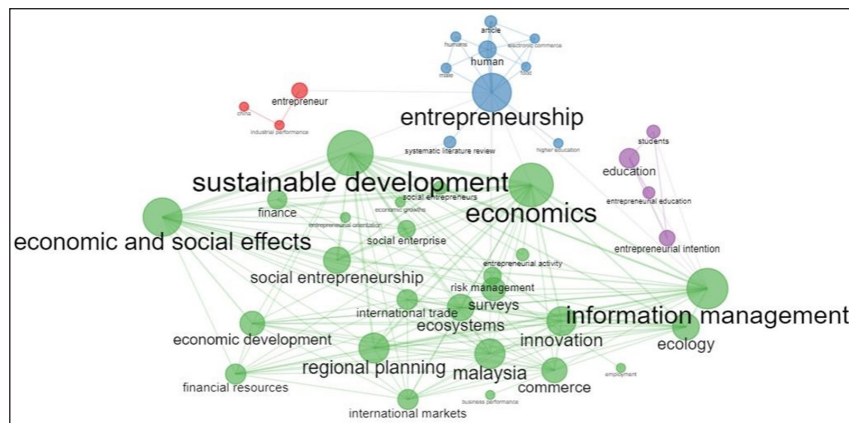**Figure 5** The 10 most impactful source

Bradford's Law

Bradford's law predicted that the number of journals throughout the second and third zones would be n and n2 times greater than the number of journals in the first zone, correspondingly, and that it should be able to estimate the total number of journals publishing articles on a subject given the core and intermediate zone numbers are established (Fairthorne, 2005). It should be capable of determining how much essential data is missing from an unfinished search once the whole number of articles is determined. It would be helpful for such research if Bradford's law accurately anticipated the number (and, if feasible, quality) of the literature given the time-consuming and significant work required to locate sources on an issue for a literature review (Friedman, 2015).

Figure 6 Bradford's Law

Co-occurrence network

Co-occurrence networks, also known as semantic networks, are a technique for text analysis that helps to illustrate potential relationships between people, groups, ideas, and living things like bacteria and other species. Text mining is made possible by electronically stored texts that may be used to build and analyze co-occurrence networks. The counting of comparable data within a collection unit is the most basic description of co-occurrence analysis (Cohen et al., 2005). The high-frequency keywords showing significant co-occurrence relationships among the topics of social entrepreneurship are shown in Figure 7. Four major clusters were created based on Figure 7. "Entrepreneurship", "systematic literature review", "male", "human", "article", "electronic commerce", "food" and "higher education" form cluster 1. Cluster 2 consists of the keywords "entrepreneur", "China", and "industrial performance". There are four networks in cluster 3, including "education", "entrepreneurial intention",

"entrepreneurial education", and "students". While in cluster 4, there are up to 25 networks such as "social entrepreneurship", "entrepreneur orientation", "social enterprise", "social entrepreneurs", "regional planning", "economic development", "information management", "financial resources" ", "finance", "international market", "economic and social effect", "commerce", "ecosystem", "international trade", "innovation", "ecology", "survey", "business performance", "Malaysia", "entrepreneurial activity", "employment", "economic growth", "sustainable development", and "economics"

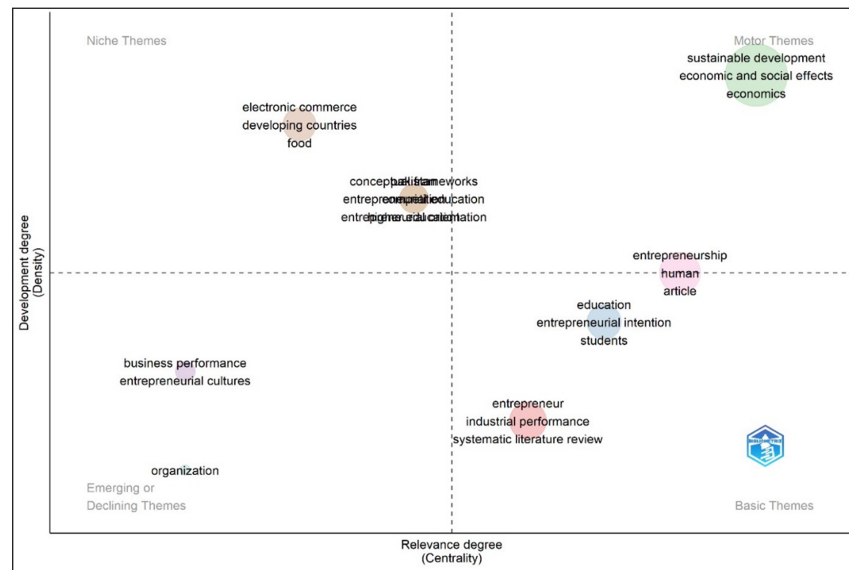**Figure 7** Co-occurrence network

RQ4: How the theme of the publication has evolved in Islamic Economy and Sustainability?

In terms of theme development, the technique combines performance analysis and scientific mapping for identifying and visualizing conceptual subdomains to quantify and visualize the thematic progression of the research field. Thematic map, trend topic, word dynamic, word cloud, and tree map were only a few of the analyses carried out for this research.

Thematic Map

The thematic map was split into four thematic quadrants in this study and also examined for density and centrality, as indicated in the image below. These outcomes are produced by a semi-automatic system that scans the titles of all references related to the study topics and adds pertinent keywords in addition to the author's keywords. In this method, deeper changes could be captured in the results. As a driving subject with high density and centrality, the upper right quadrant requires development and will be crucial to future research on topics like sustainable economics and social effect economics. A distinct and particular motif is also present in the upper left quadrant, which is highly developed and has great density but low centrality. This quadrant's topics include food, developing countries, electronic commerce, entrepreneur education, and entrepreneur orientation. Additionally, subjects in the lower left quadrant have been popular for a long time but have recently seen a downward trend and have a relatively low centrality, such as organizational structure, entrepreneurial culture, and business performance. The final underlying theme is located in the lower right quadrant and is distinguished by strong centrality and low population density. These topics, which include entrepreneurs, industrial performance, systematic literature reviews, education, students, human, and articles, are significant in research since they are frequently used as general topics.
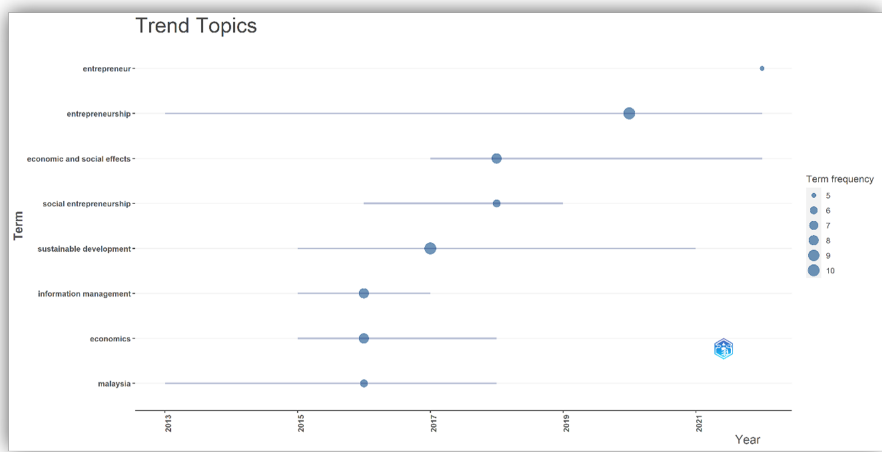
Figure 8 The thematic map

Trend Topic

An overview of the topic's trends looks at how the word has changed over time and by year. To distinguish between themes that have been used for a long time and those that have only lately (Yardibi et al., 2021) The word is used more frequently and more lately higher up and further to the right. Figure 9 and Table 10 demonstrate that in 2014, a major uptick in the topic's development began. The issue has been used since 2015, as seen in the data's description below, mainly in debates on entrepreneurship and sustainable development (F=10) in social entrepreneurship studies. While themes with an overall frequency of 8 include economics, information management, and economic and social effects. Additionally, social entrepreneurship, entrepreneurship, and entrepreneur all emerged as distinct but connected issues between 2016 and 2022. Despite the passage of time, the frequency of the subjects that have appeared since 2016 is still modest. "Sustainable Development" and "Entrepreneurship" are the subjects that are commonly addressed from 2013 to 2022, with the highest frequency compared to other themes in the years q1, q2, and q3. This information also explains why the two subjects have gained popularity in the social entrepreneurship space.

Table 10 The trend topic year

Trend Topic	Frequency (F)	%	Year_q1	Year_med	Year_q3
Economics	8	15.4	2915	2016	2018
Information Management	8	15.4	2015	2016	2017
Malaysia	6	11.5	2013	2016	2018
Sustainable Development	10	19.2	2015	2017	2021
Economic and Social Effects	8	15.4	2017	2018	2022
Social Entrepreneurship	6	11.5	2016	2018	2019
Entrepreneurship	10	19.2	2013	2020	2022
Entrepreneur	5	9.6	2022	2022	2022

Figure 9 The trend topic

Word Dynamic

The dataset's depiction of word change across time is referred to as word dynamic. The presentation may be based on the overall number of occurrences per year or the total number of occurrences of the primary keyword combined with the author's keywords, titles, or abstract. According to the total number of instances per year in the field of social entrepreneurship study, Figure 10 depicts the increase of common keywords from 2006 to 2022. Figures 10 and 11 depict statistics that demonstrate how some significant keywords began to experience a significant increase in 2018 and have since continued to do so. A clear growth in the use of dynamic keywords including "Entrepreneurship," "Economic and Social Effect," and "Information Management" is seen from an analysis of "Word Dynamic" data from 2006 to 2022. This outcome also explains why certain expressions were chosen as noteworthy and trending over time.

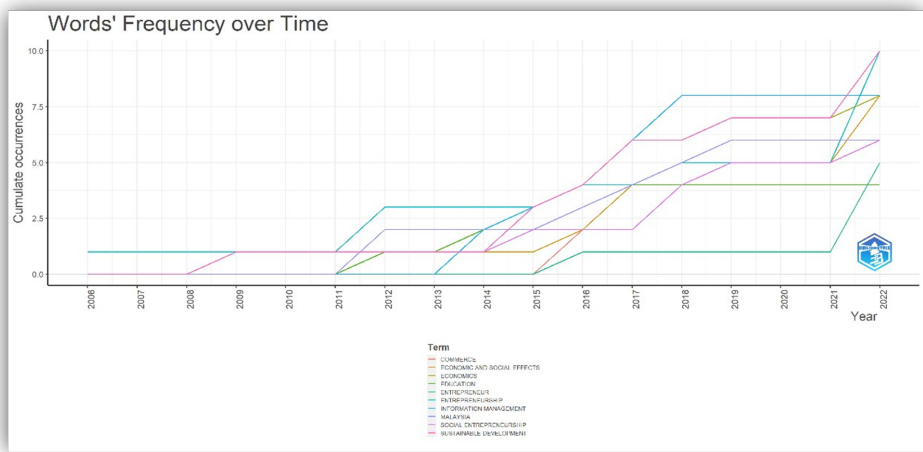**Figure 10** The Word Dynamic (2006-2022)

Figure 11 The Word Cloud

Tree Map

The nodes of a tree diagram are displayed as layered rectangles in a tree map, which is a graphical representation of hierarchical data (Lockhart, 2015). They are made up of several stacked, proportionately sized rectangles. In a data tree, a large rectangle denotes a branch, and smaller rectangles display the size of each node within that branch. The top 50 terms based on the keyword plus, the author's keywords, the title (bigrams), and the abstract (trigrams) are represented in various tree maps in Figure 12 correspondingly. According to the data from the tree map, "Entrepreneurship" and "Sustainability Development" are the two categories with the greatest percentages, each at 6 per cent, followed by "Economic," "Information Management," and "Economic and Social Effects" at 5 per cent. While the percentage of contributions from other keywords is low, ranging from 1 to 3 per cent. This result deviates greatly from the results of the "word cloud" research, which indicate that "Entrepreneurship" and "Sustainable Development" are the term that is used most frequently when talking about Social Entrepreneurship.

Figure 12 The Tree Map

CONCLUSION

The expanding field of social entrepreneurship has given rise to ideas about for-profit enterprise and social value that have inspired scholarly discussion. In addition to the concept's contentiousness, giving it a uniform definition and structure has proven difficult to give it a uniform definition and structure. Therefore, studies need to conceptualize social entrepreneurship and offer a solid framework. The social enterprise and social innovation schools are covered in the review as they relate to the social entrepreneurship approach to thinking. The social innovation system focuses on developing new and better solutions to solve social problems or meet social needs, in contrast to the social enterprise method, which is founded on revenue-generating tactics. Social enterprises do not necessarily need to put profit before social ideals, notwithstanding the ideological disagreements between the opposing sides.

Social entrepreneurship is a contentious issue in Malaysia, and seminars are well-liked for exchanging ideas. Ahmad Nh, Amran A, Othman N, Rahman Sa, and Ayob Ah are five eminent authors. Ahmad Nh has 159 citations, whereas Amran A. has 195. The Opcion and Pertanika Journal of Social Sciences and Humanities is the second-best journal in this area, behind "Jurnal Pengurusan." There are four primary clusters in the co-occurrence network. Entrepreneurship, systematic literature review, male, human, article, electronic commerce, food, and higher education are all included in Cluster 1. China, entrepreneurs, and industrial performance are all topics covered under Cluster 2. Entrepreneurial intention, entrepreneurial education, and students are all part of Cluster 3. In contrast, cluster 4 consists of 25 networks, including those for "social entrepreneurship," "entrepreneur orientation," "social enterprise," and so forth. The thematic map, trend topic, word dynamic, word cloud, and tree map were all used to analyze the theme evolution. From 2016 to 2022, "Entrepreneurship" and "Sustainable Development" is being frequently discussed. This research discusses why these two topics are popular in the field of social entrepreneurship. Contrary to the "word cloud" research, which indicates that "Entrepreneurship" is more frequently used in discussions of social entrepreneurship.

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