Research in Microinsurance: A Bibliometric Analysis and Review

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The term microinsurance was introduced as a new term in the vocabulary of development and social protection through the publication of an article in 1999 by the International Social Security Review. Today, the concept of microinsurance is becoming increasingly popular in developing countries, and the need for financial services for the poor has become universally acknowledged. Therefore, it is necessary to study the current state of microinsurance research to date. Thus, the study attempts to explore the consolidated picture of the microinsurance literature since 1999 using bibliometric analysis. The study mainly addressed four objectives: (1) to find the growth and trends of microinsurance research; (2) to find the institutions, countries, journals, and authors who have made outstanding contributions to microinsurance; (3) to visually assess the relationship between sources, countries, keywords, authors, cited sources, and affiliations; and (4) to find the trending topics in the research domain of microinsurance. This study used the systematic literature review (SLR) methodology and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Following certain inclusion and exclusion criteria, 305 documents were extracted, including journal articles, book chapters, reviews, conference papers, books, notes, editorials, erratums, conference reviews, short surveys, and retractions published between 2000 and 2022 from the 'Scopus' database. The findings show a significant increase in microinsurance publications compared to the early years, with most being published in 2014 due to a special issue in a leading insurance journal. The most significant journal was the Geneva Papers on Risk and Insurance: Issues and Practice, with David Mark Dror as the most influential author. The USA is the country that contributes the most to microinsurance literature, with the Micro Insurance Academy providing the most support for scientific research. Key terms in microinsurance publications include microfinance, insurance, health insurance, microcredit, health microinsurance, and index insurance. Financial literacy and consumer protection are potential topics that need to be closely associated with microinsurance.

INTRODUCTION

Risks are an inherent part of our lives. Individuals, households, businesses, and communities face various risks and use multiple strategies to manage them. Households with low incomes are much more susceptible to a variety of risks than the general population (Eling et al., 2014). In developing countries, a significant proportion of the population belongs to the low-income class, and they are highly exposed to a variety of risks that could harm their households' wellbeing and income (The ICMIF Foundation, 2021; Inyang & Okonkwo, 2022). These are mainly accidents, health problems, the death of the breadwinner and /or family members, and the loss of assets. Coping with these risks is harder for the rural community (Devarakonda, 2018) especially as they do not have any money in hand to cover the unforeseen losses brought on by these events. In order to cover these losses, they have to sell or mortgage their properties, take loans at high interest rates from informal sources, cut down their children's educational expenses, and cut down family health care expenses (Schanz, 2020; Caroll, 2022; Biswal & Bahinipati, 2022). Accordingly, many of them are pushed into income insecurity or become vulnerable to poverty due to the lack of access to appropriate risk management instruments (OECD and International Labour Organization, 2019). However, well-designed financial products can help them prepare for risk, reduce risk, increase business investment despite the risk, and bounce back from shocks when they occur (Aizpun et al., 2022). An essential component of insurance for reducing risks in low-income households is microinsurance. According to Churchill (2006), microinsurance is the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved. It is not a specific product or product line, but it is the provision of cover to a specific market segment and generally targets the low-income segment of an overall population. Microinsurance offers protection from a range of risks, such as illnesses, accidental injuries, deaths, natural catastrophes, property losses, and any other risks that can be insured. While lowering poverty and boosting welfare, microinsurance can help low-income households manage risk and maintain a sense of financial security (Chow, 2022; Worku & Asmare, 2018; Wanczeck et al., 2017; Paramasivan & Subbiah, 2016; Apostolakis et al., 2015; Varshini & Suresh, 2013; Zenklusen & McCord, 2009). Hence, it is considered not only as a financial service but also as a social protection system (Churchill, 2006). Although microinsurance is a better risk management tool for low-income households and a social protection system, in the world, hundreds of millions of people are still left

without appropriate risk management tools (Munich Re Foundation, 2021). According to the report published by the Micro Insurance Network (Merry, 2021), in 30 countries in Africa, Asia, Latin America, and the Caribbean, between 6% and 14% of the target population are covered by microinsurance. Therefore, microinsurance is a veritable strategy to increase insurance penetration (Inyang & Okonkwo, 2022) and finally, this financial inclusion becomes a key lever for building resilience, reducing poverty, and stimulating economic growth (Aizpun et al., 2022).

The term microinsurance was introduced by … as a new term in the vocabulary of development and social protection through the publication of an article in 1999 (Dror & Jacquier, 1999). Currently, the idea of microinsurance is gaining popularity in developing countries, and it is widely acknowledged that the poor need access to financial services. In the initial phase, there were no more publications on microinsurance. In 2005, the International Microinsurance Conference (IMC) was launched and became an annual event to promote microinsurance and engage academics and practitioners in IMC content. In addition, since 2014, a leading insurance journal has published a special issue on microinsurance every two years, which has made a significant contribution to the publications on this topic. Due to its increasing importance, the number of published articles on microinsurance has recently increased (Dror, 2019).

There is minimal information on how scholarly research on microinsurance practice and theory has changed over time and has added to the microinsurance literature (Dror, 2019). Analysis of which journals, countries, and authors are contributing more to the topic of microinsurance is likewise yet in its infancy. There are very few comprehensive literature reviews on microinsurance (Dror & Eling, 2021). Such a study of the literature has been performed by earlier academics on microfinance (Ali et al., 2022) but not specifically on microinsurance. Thus, there is a timely need to present a consolidated picture of the microinsurance literature.

Accordingly, this study quantitatively analyzed selected literature on microinsurance from 1999 to 2022 using the bibliometric method. The main objectives of this study were to (1) find the growth and trends of microinsurance research; (2) find the institutions, countries, journals, and authors who have made outstanding contributions to microinsurance; (3) visually assess the relationship between sources, countries, keywords,

authors, cited sources, and affiliations; and (4) find the trending topics in the research domain of microinsurance.

The organization of the paper includes five sections. The introduction, which is the first section, describes the study's background, current knowledge, rationale for the study, and objectives. Section 2 discusses the methods used in this study; Section 3 presents and analyzes the results; Section 4 summarizes and discusses the results; and finally, Section 5 includes the article's conclusion, limitations, and suggestions for further study.
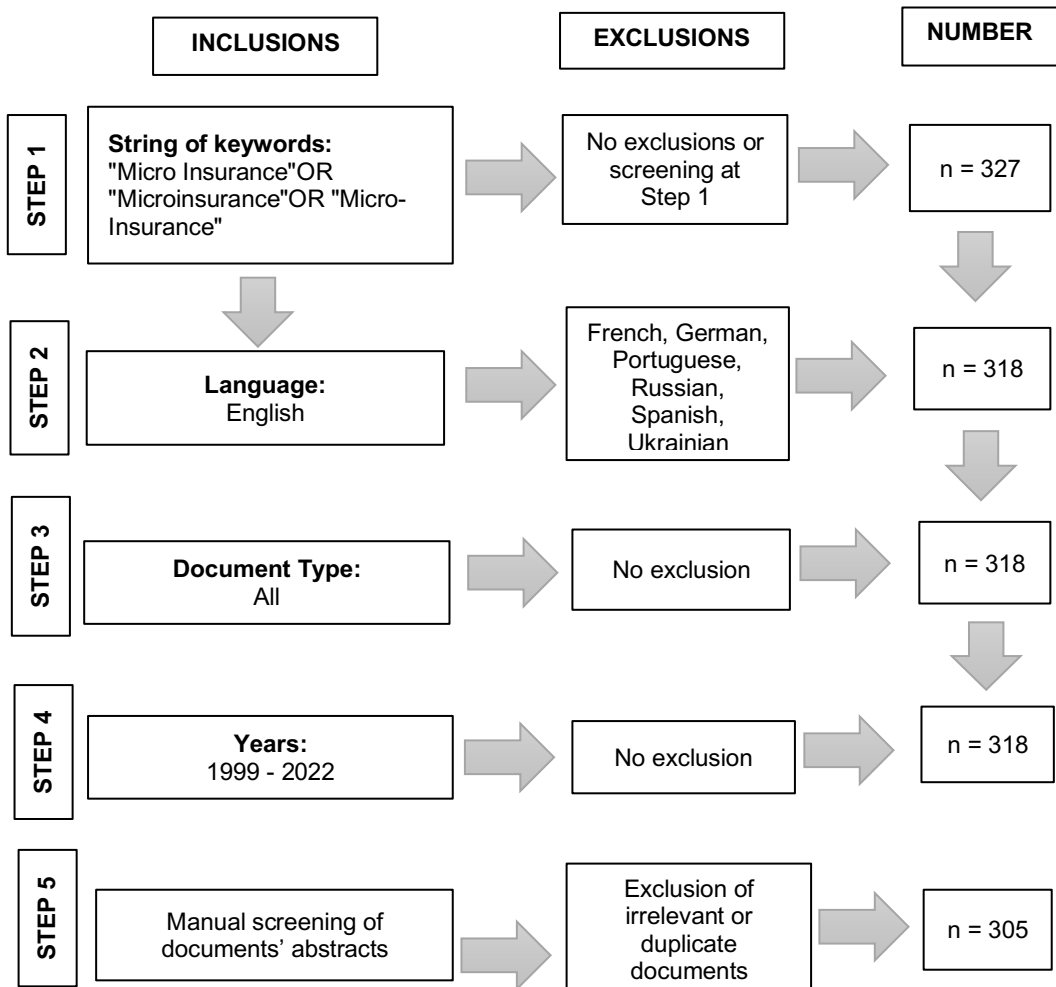
METHODOLOGY

In accordance with the objective of the present study, the method of bibliometrics was used to analyze scientific publications on microinsurance. This study's methodology was divided into two sections, which are each discussed in more depth in the section below.

Article Inclusion and Preparation

This was a literature-based descriptive study involving bibliometric analysis. The study was based on the original data collected during the period from 1999 to 2022 by using the Scopus database. The research data were retrieved from the Scopus database using the search string "Micro insurance" or "Microinsurance" or "Micro-insurance" in December 2022. The language was restricted to English, and all types of publications were selected. The search strategy yielded 305 records and searched documents (articles, books, book chapters, conference papers, reviews, short surveys, notes, and editorials) that were stored in the Excel spreadsheet with complete records and cited references. These data were exported for analysis.

**Figure 1: Search Criteria of Scientific Publications**

INCLUSIONS	EXCLUSIONS	NUMBER
STEP 1 — **String of keywords:** "Micro Insurance"OR "Microinsurance"OR "Micro-Insurance"	No exclusions or screening at Step 1	n = 327
STEP 2 — **Language:** English	French, German, Portuguese, Russian, Spanish, Ukrainian	n = 318
STEP 3 — **Document Type:** All	No exclusion	n = 318
STEP 4 — **Years:** 1999 - 2022	No exclusion	n = 318
STEP 5 — Manual screening of documents' abstracts	Exclusion of irrelevant or duplicate documents	n = 305

Source: Authors' own data

Bibliometric Analysis Strategies

The shiny app for bibliometrics from R Statistical Package was used to carry out the present bibliometric analysis and, in addition, Microsoft Excel was used for the data analysis. Figure 2 depicts an overall view of the bibliometric analysis techniques.

Using the Bibliometric R-package (Aria & Cuccurullo, 2017), fundamental analytical findings on the microinsurance study were calculated and reported in 5 categories during the performance analysis phase. These include growth and trends (Annual Scientific Production), most relevant sources, most productive authors, most productive countries, and most productive institutions. Further, the three-field plot in Biblioshiny was utilized to visually assess the relationship between sources, countries, keywords, authors, and affiliations.

In the network analysis segment, the collaborative network of the authors and the institutions was plotted by way of using the social structure factor of the bibliometric R-package (Aria & Cuccurullo, 2017) provided in the Biblioshiny user interface. Further, a co-occurrence network and thematic map analysis were executed by using the conceptual structure component of the bibliometric R-package in order to express research themes and trending topics in the area of microinsurance.

Figure 2: Bibliometric Analysis Strategies
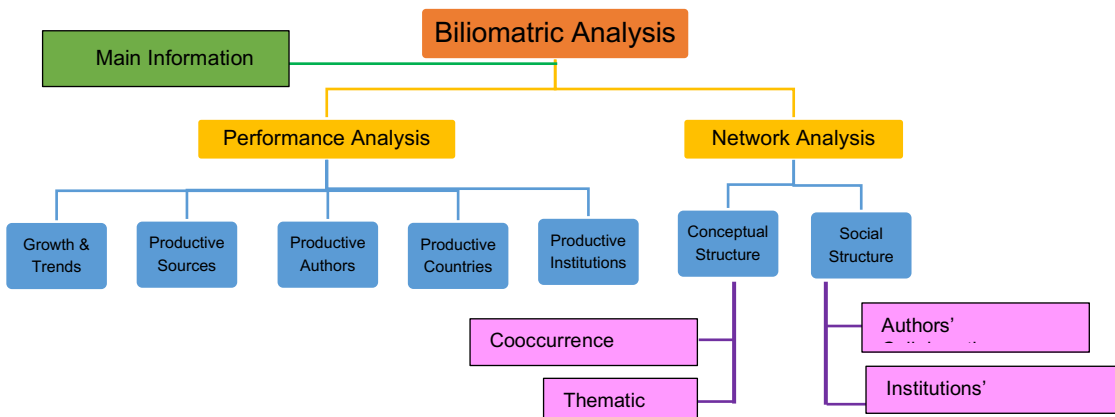
Source: Developed by researcher based on literature

Results

In this section, the results of findings are presented to show (i) growth and trends in the field of microinsurance research in terms of annual scientific production and citations; (ii) prolific sources, authors, countries, and institutions; (iii) the relationship between sources, countries, keywords, affiliations, and authors; (iv) social networks and co-occurrence networks; and (v) the thematic map of the field of microinsurance.

Data Analysis

This literature review included 305 documents related to microinsurance published between 1999 and 2022. Figure 3 shows the summary of document types, which included 229 articles, 26 book chapters, 16 conference papers, 16 reviews, and 7 books from 191 sources, and the annual growth rate of the publications relating to this area is shown as 12.81%. A total of 12,130 references from different countries were made to the documents published in the Scopus database during this time, with an average of 11.22 citations per publication. As shown in Table 1, there were a total of 567 authors used for the bibliographic analysis, and there were 717 author keywords.

Table 1: Description of the Papers Used in Bibliographic Analysis

| Timespan	1999:2022
Sources (Journals, Books, etc)	191
Documents	305
Annual Growth Rate %	12.81
Average citations per doc	11.22
References	12130
Author's Keywords	717
Authors	567

Figure 03: Document Type
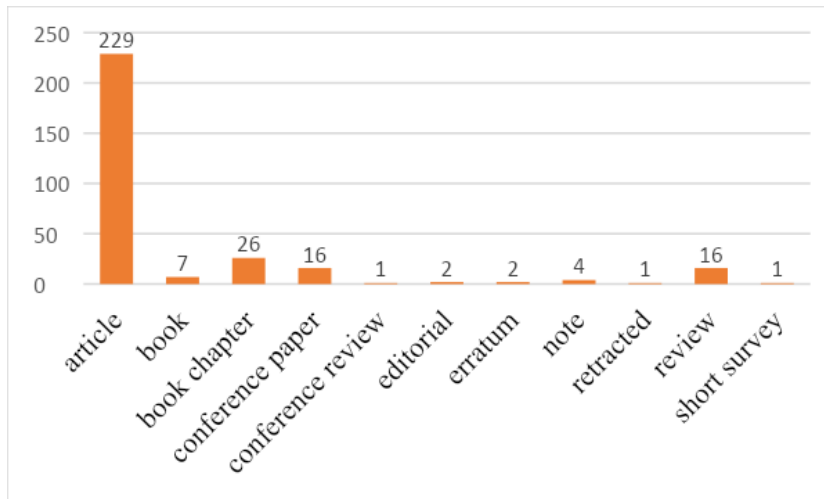
Source: Authors' own data

Growth and Trends of Microinsurance Research

Figure 4 shows the trend of published work on microinsurance over the period 1999 - 2022. Research on microinsurance appears to have begun in 1999, as seen in Figure 4, with the work of Dror and Jacquier (1999) being the first and only article included that year. According to the bibliometric R package's analysis from 1999 to 2022, the field of microinsurance has an annual growth rate of scientific output of 12.81%. According to the findings, the trend in publications has greatly increased compared to the early years. Most publications related to microinsurance were published in 2014 (N = 30), with the leading insurance journal publishing a special issue on microinsurance. The number of publications per year was less than 10 in the first 10 years after 1999, and in 2000, no article on microinsurance was found in Scopus. However, the number of publications produced up to 2022 generally increased while recording peaks in 2016, 2019, and 2021, in which the leading insurance journal published special issues on microinsurance.

Figure 4: Annual Scientific Production
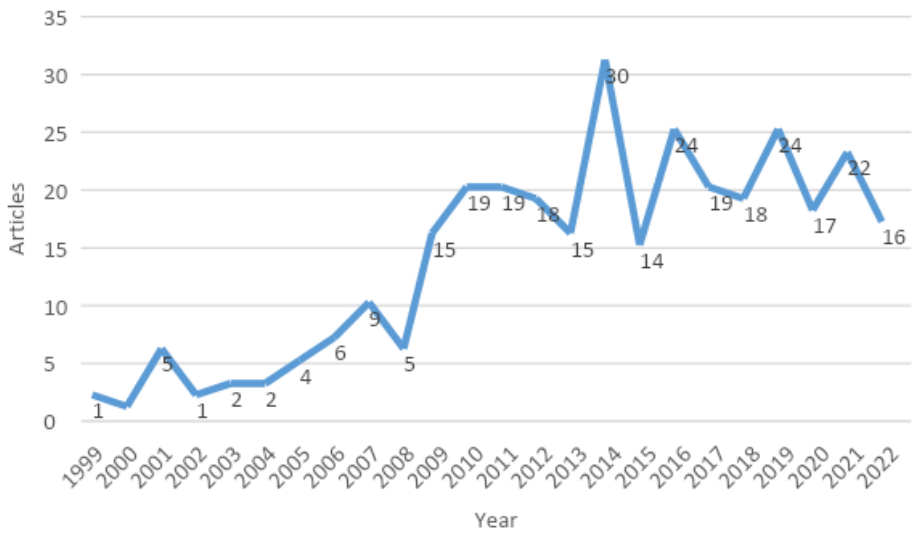
Source: Authors' own data

Figure 5 displays the typical number of citations made to articles on microinsurance every year. This outcome demonstrates the annual impact of publishing on the field. The final analysis reveals that, with an average of 3.67 citations, the lone article from 1999, which marks the field's inception, has received the most citations to date. This suggests that the authors' (Dror & Jacquier, 1999) study had a significant influence on the microinsurance industry. However, this variety dropped sharply to zero in 2000, and the cause of this decrease in citations may be that in 2000 there were no articles searched in Scopus related to microinsurance. Besides, in line with Figure 5, it may be seen that after 1999, average citations per year did not increase a lot, apart from the year 2017, which recorded 3.19 average citations per year.

**Figure 5: Average Citations per Year**
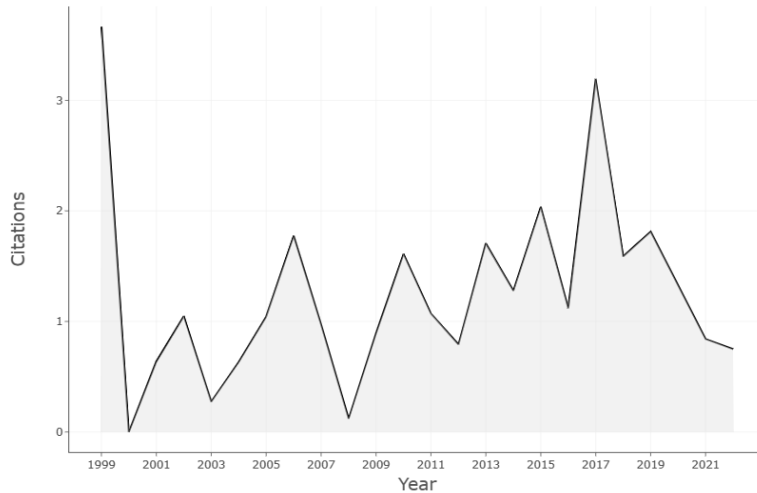
Source: *Authors' own data*

Most Productive Sources of Microinsurance

According to Figure 6, "Geneva Papers on Risk and Insurance: Issues and Practice", had the highest contribution in this domain. This journal alone published 29 research papers within the specified period, which is almost 9.5% of the total publications.

Figure 6: Most Relevant Sources
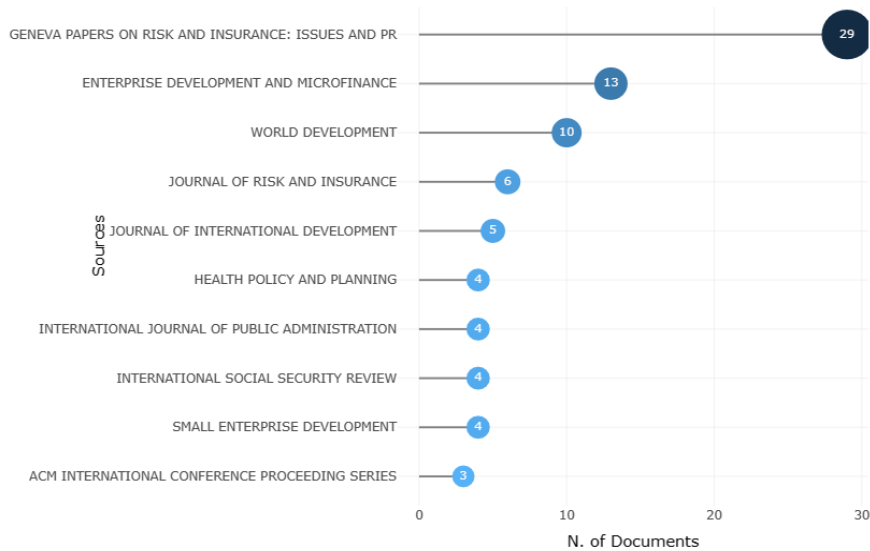
Source: Authors' own data

However, as Figure 7 shows, the number of articles produced shows slow growth until 2013 and then increases significantly from 2014, with peaks in 2016, 2019 and 2021, which were the years that published special issues on microinsurance. *The Journal of Enterprise Development and Microfinance* has published 13 articles, while *The Journal of World Development*" contributed 10 articles in this area. However, the J*ournal of Enterprise Development and Microfinance* last published articles in 2016 and will not be published until then.

Figure 7: Source Dynamics
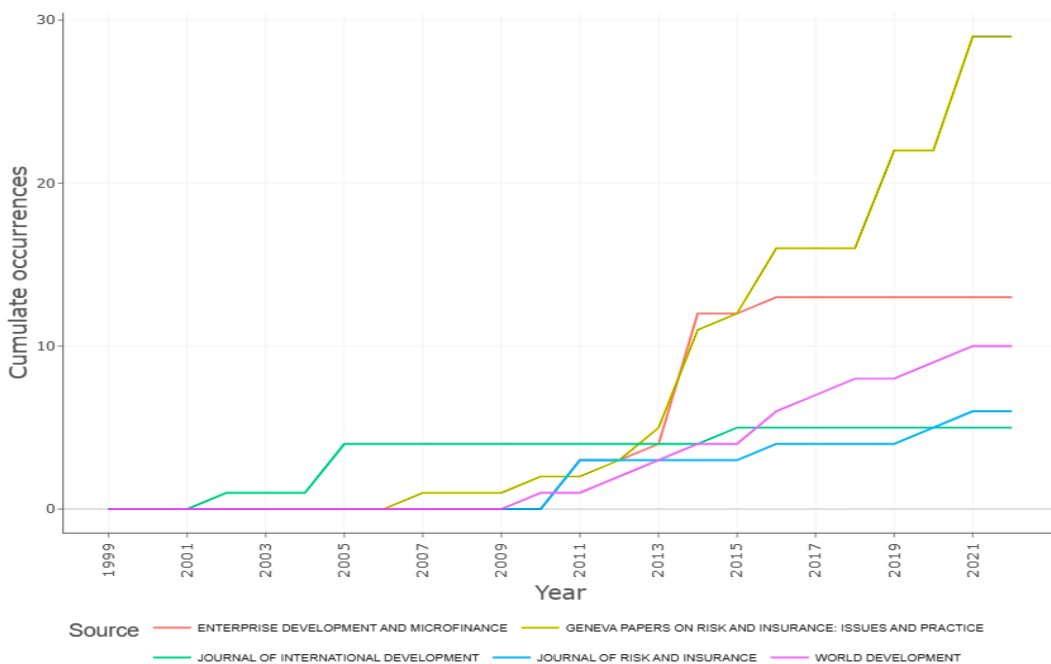
Source: Authors' own data

When analyzing the productivity of publication sources by using Bradford's Law in Figure 8, it is evident that the output is diversified with 17 sources out of 191. But the important factor to be considered here is that only three journals have established themselves as the most important publishers in this field, with fewer than 10 articles published by other journals.

Figure 8: Source clustering through Bradford's Law
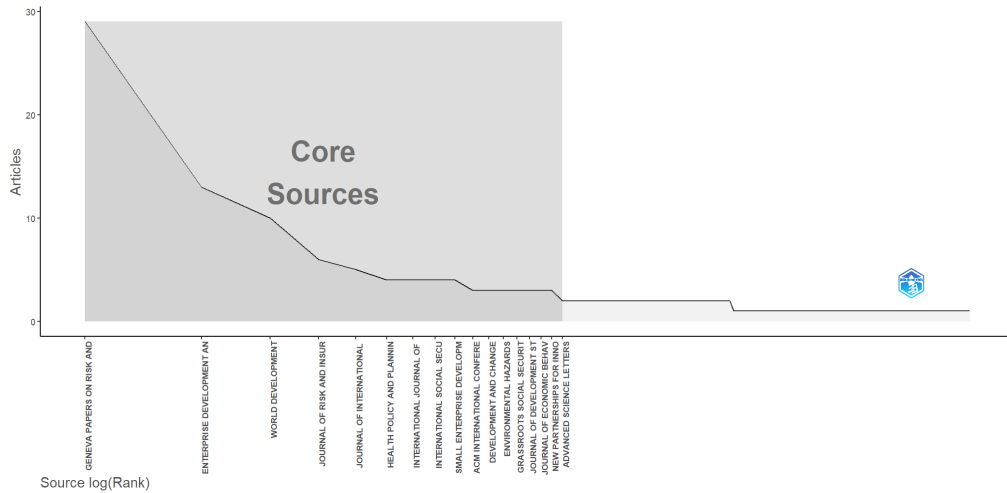
Source: *Authors' own data*

Table 2: Most Relevant Sources

| Source	No. of Publications	Total Citations	h_index
Geneva papers on risk and insurance: issues and practice	29	256	10
World development	10	224	6
Third world quarterly	2	156	2
Handbook of development economics	1	146	1
Health policy and planning	4	112	4
Global environmental change	2	108	2
International social security review	4	107	2
Journal of economic behavior and organization	3	92	3
Agricultural economics (The United Kingdom)	1	87	1
Environmental hazards	3	86	3

Source: Authors' own data

To further comprehend the influence of these journal articles, we show the top 10 most cited journals in Table 2 together with their total number of publications (NP), total citations (TC), and related h-index values. Accordingly, the ranking changes when we look at the TC and h-index. Geneva Papers on Risk and Insurance: Issues and Practice is the most abundant in terms of publications as well as the most influential journal, receiving a total of 256 citations with a 10 h-index. Although the *Journal of Enterprise Development and Microfinance* ranked second on the publication list, it fails to place itself in the top ten influential journals. The other five journals, *Journal of Risk and Insurance*, *Journal of International Development*, *International Journal of Public Administration*, *Small Enterprise Development*, and *ACM International Conference Proceeding Series* also dropped from the top 10 when considering the impact of publications.

Most Productive Authors in Microinsurance

It is feasible to determine whether the field under analysis is one in which the majority of the output is concentrated on a small number of authors, according to Lotka's law (Figure 9). In our situation, production is diverse because 84% of the total number of contributing authors (476 out of 567) had only one publication. In essence, the distribution shows that scientific publications' contributions are not evenly split among their authors but rather vary with the number of authors.

Figure 9: Author Productivity through Lotka's Law
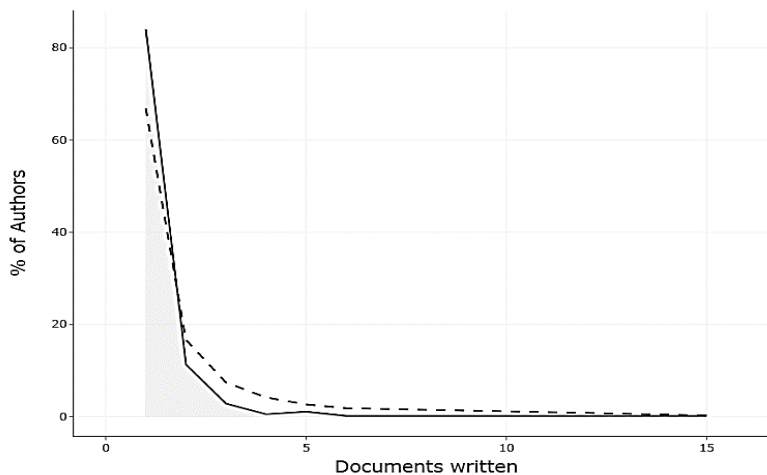
Source: Authors' own data

We can better comprehend how each researcher has made a substantial contribution to the subject of microinsurance by looking at the most prolific authors in the field. To understand the productivity and influence of these publications, Table 3 displays the top 10 most cited authors together with the total number of publications (NP), the total number of citations (TC), and the corresponding values of the h-index. David Mark Dror tops the list as a result, with 15 articles. His publication impact ranking in terms of total citations (TC) and h-index places him as the top author. He garnered 246 citations, giving him a 9 h-index.

Table 3: Most Productive Authors

Authors	No. of Publications	Total Citations	h_index	Publication Year Started
DM Dror	15	246	9	1999
P Panda	5	89	5	2011
MR Carter	5	206	4	2013
M Eling	5	126	4	2011
MJ Mccord	5	56	4	2001
C Biener	4	102	4	2011
R Radermacher	4	57	4	2009
J Bauchet	4	13	3	2017
S Akter	3	70	3	2010
T Arun	3	40	3	2009

Source: *Authors' own data*

Further, Dror has published scientific documents consistently in the area of microinsurance since 1999 to date (Figure 10), which is significantly higher than all other authors that have five or less than five publications on the related topics. P Panda, MR Carter, M Eling, and MJ Mccord published five each. However, MR Carter received 206 citations and an h-index of 4, followed by M. Eling, who received a total of 126 citations with an h-index of 4. P Panda and C Biener are next among the other influential contributors to

research areas in terms of received citations for their scientific publications and corresponding h-index scores.

Figure 10: Authors' Production over Time
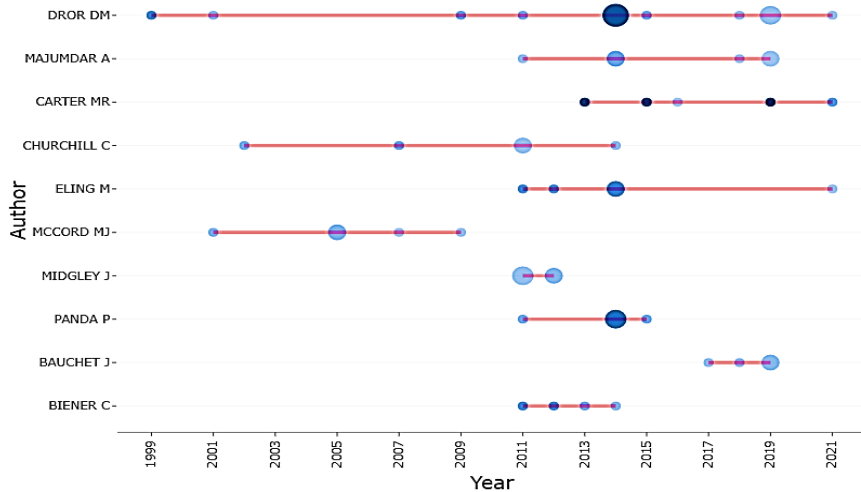
Source: *Authors' own data*

Relationship between keywords, authors, and sources

The three-field plot in Biblioshiny is utilized to visually assess the relationship between sources, countries, keywords, authors, cited sources, affiliations, etc. Figure 11 included three field analyses that illustrated the connections between authors, sources, and keywords. The left column in Figure 11 featured the name of the journal, the middle column contained keywords, and the right column contained the authors. With the use of this research, we can locate authors who have written about microinsurance and determine the kinds of journals that have published their work. The analysis established that most of the authors have considered microinsurance as their keyword, and most of their research on microinsurance has been published in sources such as *Geneva Papers on Risk and Insurance*, *Enterprise Development and Microfinance*, and *World Development*. As well as 'microfinance', 'health insurance, 'index insurance, 'insurance, 'poverty', 'microcredits', and 'risk' are closely related keywords with microinsurance that are used by different authors. Additionally, David M. Dror and M.R. Carter focused on many of these topics.

Figure 11: Three Field Analyses (keywords, authors, sources)
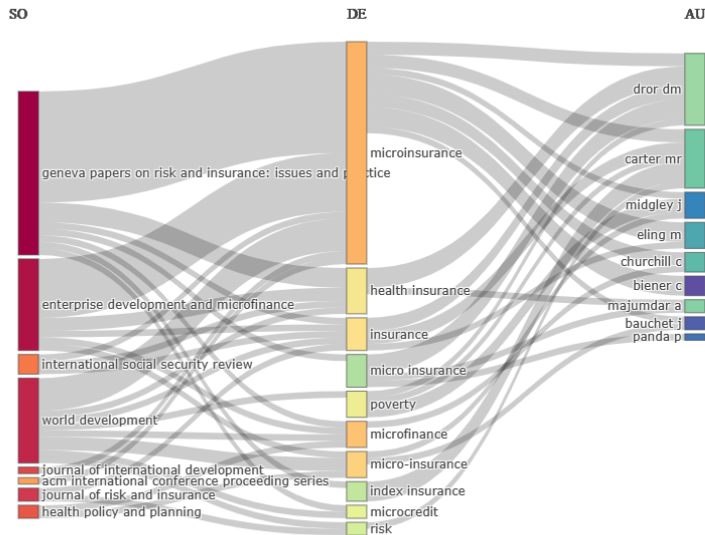
Source: *Authors' own data*

Most Productive Countries

Fifty-eight different countries have publications in the field of microinsurance. For the overall number of documents per country, the study adopts a cutoff of 20. Accordingly, based on the overall number of publications, Table 4 ranks the top 10 countries out of 58 as the most productive countries. The United States of America is the most productive country in this research area, with 136 published documents and 697 citations. According to Table 4, India, Malaysia, and the United Kingdom have microinsurance related publications of 64, 47, and 40, respectively. Other countries, such as Germany, the Netherlands, Switzerland, Australia, China, and South Africa have less than 40 publications in this field. However, Germany and Switzerland received 240 and 139 citations, respectively.

Table 4: Most Productive Countries

Country	Total Publications	Total Citations
USA	136	697
India	64	123
Malaysia	47	10
UK	40	161
Germany	37	240

Netherlands	31	97
Switzerland	29	139
Australia	23	33
China	22	12
South Africa	22	6

Source: Authors' own data

Figure 12 illustrates the country's scientific output. On the map in Figure 12, the blue color denotes the presence of publications for specific countries on the themes under consideration, while the gray color denotes the absence of a publication. More publishing countries are represented by the countries with a darker blue color.

Figure 12: Country Scientific Production
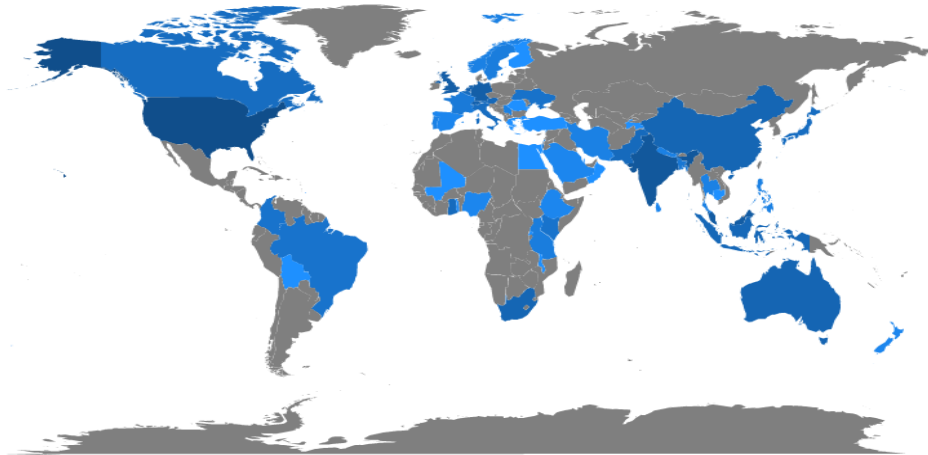
Analyzing the geographic distribution of publications and considering the countries of the corresponding authors, Table 5 shows the most prolific countries in terms of the total number of publications and represents the collaborative nature of the leading countries' scholarly output through multi-country publications (MCP) and multi-country Publication Ratio (MCPR). When considering the number of publications, researchers from the United States of America have attained first place in this field of research with 40 published documents. According to Table 5, India, the United Kingdom, Germany, and Switzerland have microinsurance related publications of 19, 14, 13, and 10, respectively. Other countries, such as South Africa, Australia, China, Malaysia, Canada, and the Netherlands, have less than 10

publications in this field. Surprisingly, however, in the case of MCP or author collaborations with authors from other countries, the US has not secured at least one spot in the top five positions in this area, while India has superior collaborative publishing performance weighed against the other major publishing countries on the list with an MCPR of 0.684. In addition, the collaborative research trend is higher for the Netherlands, Australia, and China, with MCPR values of 0.6, 0.571, and 0.429, respectively. Other countries have average contributions.

Table 5: Most Productive Countries (corresponding authors' countries)

| Rank	Country	Number of Publications	Single Country Publications	Multiple Country Publications	Multiple Country Publications Ratio
1	USA	40	31	9	0.225
2	India	19	6	13	0.684
3	United Kingdom	14	11	3	0.214
4	Germany	13	10	3	0.231
5	Switzerland	10	7	3	0.3
6	South Africa	8	7	1	0.125
7	Australia	7	3	4	0.571
8	China	7	4	3	0.429
9	Malaysia	7	6	1	0.143
10	Canada	5	4	1	0.2
11	Netherlands	5	2	3	0.6

Source: *Authors' own data*

Figure 13: Country Collaboration Network
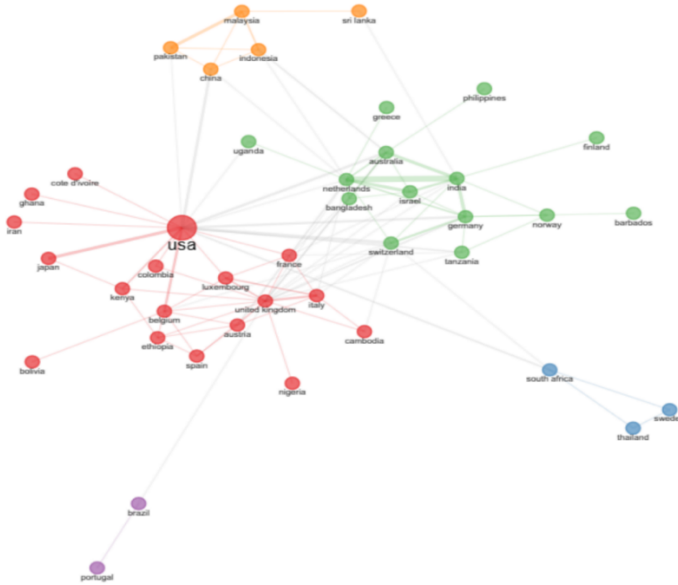
The top 40 country collaboration networks from our collected bibliographic data are displayed in Figure 13, which could reflect the degree of international communication as well as the countries that are influential in this field. The network contains three main communities, each with a unique color for its nodes. The size of the nodes indicates how much a country has influenced research on microinsurance (based on the number of publications). The strength of international cooperation is indicated by the edges between the nodes.

Relationship between keywords, countries, and authors

Figure 14 featured three field analyses illustrating the link between keywords, countries, and authors. The authors are listed in the left column, the countries are listed in the middle column, and the keywords are listed in the right column. The height of the rectangles indicates the number of studies carried out by the authors, countries, and study areas; as more studies are undertaken by each of these entities, the rectangles grow in both width and height.

**Figure 14: Three Field Analyses (keywords, countries, and authors)**
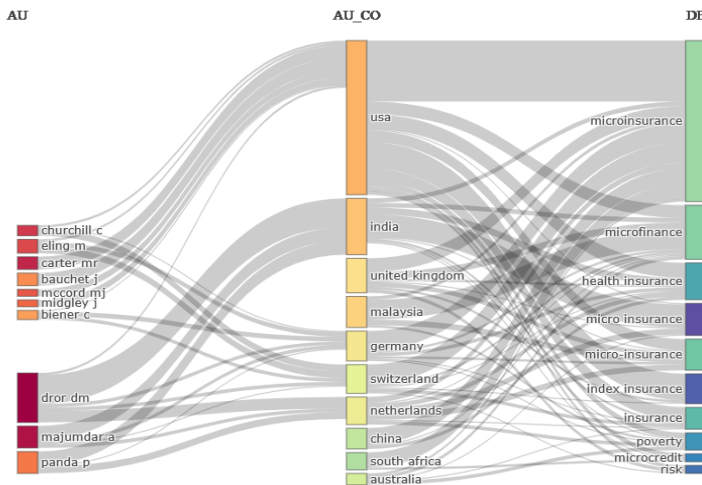
Source: Authors' own data

The analysis showed that the USA, India, the UK, Switzerland, the Netherlands, and Germany are the countries with the most research on microinsurance as evidenced by the size of the rectangles representing each country. It also confirms that 'microinsurance' is a common keyword across most studies. However, variations of the term, such as 'micro insurance' and 'micro-insurance,' appear in some articles. Notably, 'micro insurance' is frequently used in Indian research, while Malaysian studies predominantly focus on microfinance. Most of the Indian research has been led by David M. Dror, who has conducted fewer studies in the USA, Switzerland, and Germany, and none in the UK.

Relationship between sources, countries, and authors

The three-field analysis depicted in Figure 15 highlights the relationships among sources, countries, and authors. The left column of Figure 15 lists the sources, the center column shows the countries, and the right column names the authors. The volume of studies conducted by countries and authors, as well as those published by sources, is indicated by the height of the rectangles. Parallel to the increase in the number of studies from each entity increases, the size and height of the rectangles also increase. Additionally, the lines connecting authors and countries to sources represent the strength of their relationships; the more research by authors and countries that is published in a source, the thicker these connecting lines will be.

Figure 15: Three Field Analyses (sources, countries, and authors)
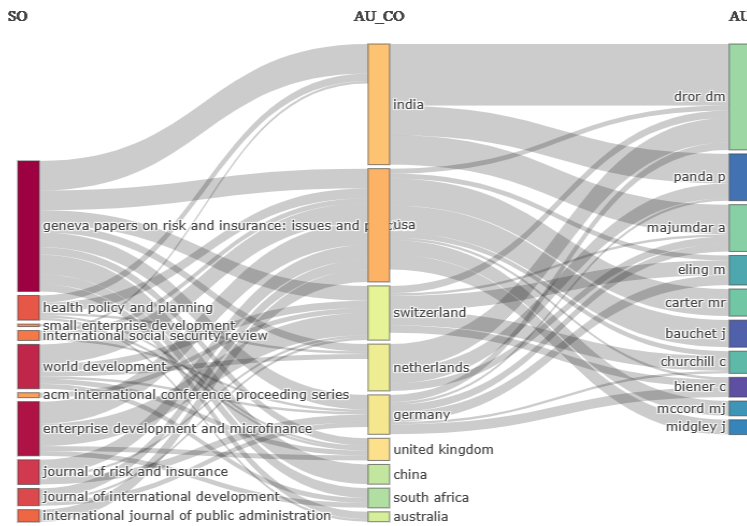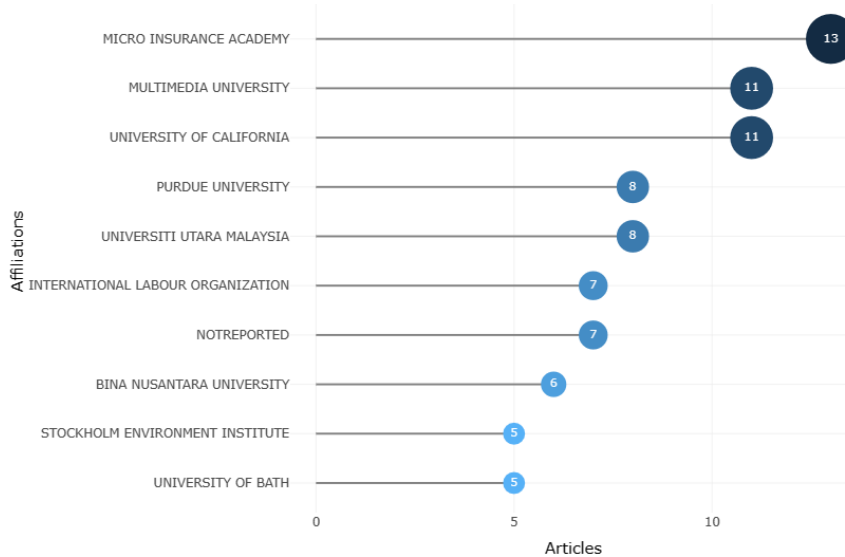

Source: Authors' own data

The larger rectangles indicate significant contributions from India, with notable work by DM Dror, P Panda, and A Majumdar, primarily published in *Geneva Papers on Risk and Insurance: Issues and Practice*, *Health Policy and Planning*, and *International Social Security Review*. Conversely, the size of the rectangles for the USA reflects strong performance supported by seven authors, who diversified their research across various top-tier journals. In Switzerland, key authors such as DM Dror, A Majumdar, M Eling, C Churchill, and C Biener mainly published in *Geneva Papers on Risk and Insurance: Issues and Practice* and the *Journal of Enterprise Development and Microfinance*. Germany, benefiting from contributions by all the principal authors recognized in Switzerland, along with P Panda, disseminated their research across five journals. From the standpoint of publication sources, *Geneva Papers on Risk and Insurance: Issues and Practice* is the most published journal, with significant contributions from authors in India, the USA, and China, as well as Switzerland, Germany, the Netherlands, the UK, South Africa, and Australia. Publications in other sources are distributed more randomly among various leading publishing countries.

Most Productive Academic Institutions

According to the results presented in Figure 16, the Micro Insurance Academy possessed the greatest backing for publishing scientific research on microinsurance with 13 studies. Multimedia University and the University of California are at the next level with 11 studies. Purdue University has made a

notable contribution and published eight documents, followed by the University of Utara Malaysia. Further in this field, notable contributions are made by the International Labour Organization with seven scientific publications.

Figure 16: Most Relevant Affiliations

Source: Authors' own data

Co-authorship and Social Collaboration Analysis

The study looked at the social structure section of the bibliometric R-package offered in the Biblioshiny user interface regarding social collaboration and co-authoring analyses (Aria & Cuccurullo, 2017). According to scholars, the collaboration between two or more individuals, institutions, or countries is described by the social network of participants in a domain (Song, et al., 2019). In a network, the links connecting the nodes stand in for the relationships, while the nodes themselves represent the participants in the network. Figures 17 and 18 depict the collaboration network of authors and the collaborative network of institutions, respectively, in this study. As a result, the big name is already mentioned as the most published and impactful scholar in the field; DM Dror has a well-established collaborative network, and other scholars have been shown to have a little collaborative network.

Figure 17: Authors' collaboration network

Source: Authors' own data

Likewise, organizations such as the Microinsurance Academy and the University of California have forged an extensive network of partnerships with others. For example, the Microinsurance Academy has Erasmus University, the University of Cologne, and Erasmus University Rotterdam in its partnership network. However, several other organizations are shown to have a small network of partnerships. Although these organizations contribute to the field of microinsurance research, they have not collaborated with other organizations to broaden their social networks in the domain.

Figure 18: Institutions' collaboration network
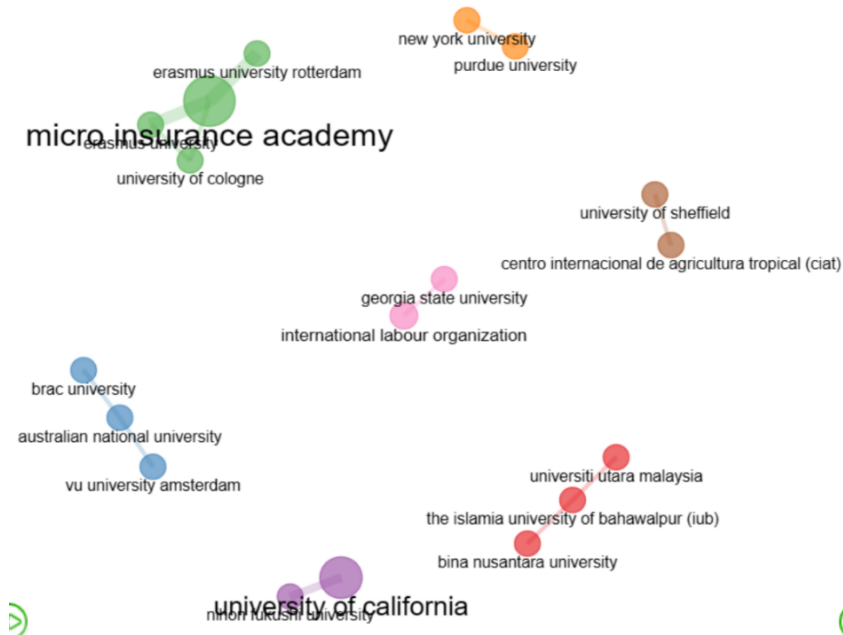
Source: Authors' own data

Trending Topics on Microinsurance

Word cloud map analysis

Examining the keywords writers employ in their works is one of the analytical tools for researching trending topics and academics focusing on the field (Song et al., 2019). This analysis was done because a publication's keywords can be used to easily pinpoint the subject and focus of that article.

Figure 19: Word cloud
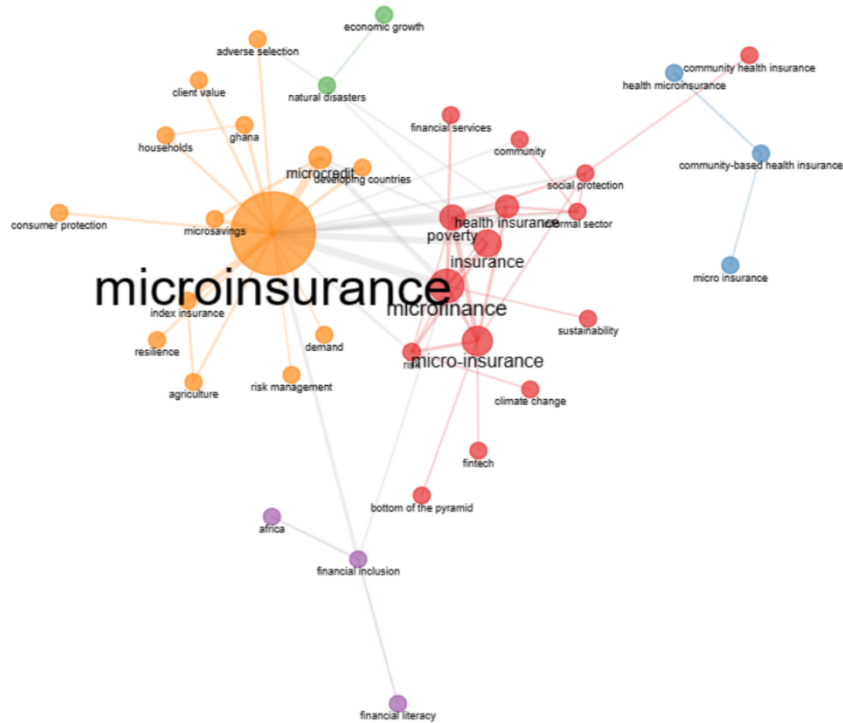

Source: Authors' own data

The word cloud in Figure 19 demonstrates the microinsurance researchers' primary areas of study. Cloud tags are a visual representation of how much attention researchers give to particular topics; larger tags indicate higher keyword usage frequency, while smaller tags indicate lower keyword usage frequency. Accordingly, topics such as microfinance, micro-insurance, insurance, health insurance, microcredit, health microinsurance, and index insurance are frequently used keywords in microinsurance publications.

Keywords Co-occurrence Analysis

Additionally, the study explored keyword co-occurrence networks (KCN) to delve deeper into microinsurance trends. As Esfahani et al. (2019) suggest, KCN analysis delineates the interrelations among keywords within the literature, shedding light on the knowledge structure of the subject. Our findings indicate that KCNs do more than identify common keywords like a word cloud and as shown in Figure 19, they also elucidate the connections between these terms, as depicted in Figure 20. Certain terms have a more pronounced impact on the network. For example, when examining the keywords by color code, it becomes evident that larger keywords, indicated by their width, are linked to other, smaller keywords within the network. For instance, 'microinsurance' is associated with 'microcredit,' 'microsavings,' 'risk

management,' 'agriculture,' 'resilience,' and 'consumer protection.' Similarly, the keyword 'microfinance' is closely connected to 'microinsurance,' as well as to 'poverty,' 'insurance,' and 'sustainability.'

Figure 20: Keywords Co-occurrence Network

Source: Authors' own data

The Thematic Map: Co-word Analysis

The thematic map of microinsurance represents another analytical dimension of this research. The aim of a thematic map is to assess the current state of the field and its potential for sustainable development. This analysis provides insights into the potential growth of subject areas within a domain, valuable information for researchers and stakeholders. Thematic analysis employs clusters of authors' keywords and their interconnections to identify themes. The thematic map is divided into four quadrants (clusters of keywords) based on centrality and density rank values plotted along two axes. The X-axis, denoting centrality, indicates how integral a cluster is to the network, reflecting its significance in the evolution of the entire research field. The Y-axis

measures the internal strength and cohesion of the cluster network, indicating the development level of each theme. Consequently, the first quadrant highlights motor themes (mature and central to structuring a research domain); the second quadrant points to niche themes (advanced yet peripheral to the field); the third quadrant encompasses either emerging or declining themes (nascent or waning in relevance); and the fourth quadrant includes basic and transversal themes (broad topics that span various research areas within the field).

Figure 21: Thematic Map

Source: Authors' own data

Figure 21 presents the thematic map of the microinsurance industry. Consequently, a theme like 'microinsurance,' positioned between Quadrants 1 and 4, demonstrates strength and a capacity to structure the research area. In other words, 'microinsurance' remains the dominant theme within the field. Themes such as 'microfinance' and 'financial inclusion' from Quadrant 4 form the foundational and critical pillars for the field's growth. Themes from Quadrant 2, while interconnected, still contribute only marginally to the

development of microinsurance. Hence, topics in Quadrant 2, like 'financial literacy' and 'consumer protection,' are potential areas that require stronger linkage with microinsurance. More effort is necessary to evolve these themes and forge more connections to microinsurance. This endeavor is crucial because 'financial literacy,' as an established field, can significantly influence the structure, future, and sustainable development of microinsurance.

DISCUSSION

Using a bibliometric analysis, this work has sought to present a thorough overview of all scientific works about microinsurance from 1999-2022. The study mainly addressed four objectives: (1) to find the growth and trends of microinsurance research; (2) to find the institutions, countries, journals, and authors who have made outstanding contributions to microinsurance; (3) to visually assess the relationship between sources, countries, keywords, authors, cited sources, and affiliations; and (4) to find the trending topics in the research domain of microinsurance.

Figure 4 shows the trend of published work on microinsurance over the period 1999–2022. Research on microinsurance appears to have begun in 1999, and only one article was included that year. According to the analysis, the annual growth rate of scientific output on microinsurance is 12.81%, and the trend in publications has greatly increased compared to the early years. The number of publications per year was less than 10 in the first 10 years after 1999, and in 2000, no article on microinsurance was found in Scopus. Most publications related to microinsurance were published in 2014 (N = 30), and the number of publications produced up to 2022 generally increased while recording peaks in 2016, 2019, and 2021, in which the leading insurance journal published special issues on microinsurance.

By examining the bibliometric data of the relevant literature, we discover that, out of 567 writers, DM Dror is the most published author, having written 15 scientific papers. In addition, DM Dror was identified as the most influential author with the highest h-index and the total number of citations. With a total of 256 citations and a 10 h-index, *Geneva Papers on Risk and Insurance: Issues and Practice* is recognized as the publication source with the highest production rate and the greatest influence. Regarding the number of publications and the countries of corresponding authors, the USA is the most productive country. The Micro Insurance Academy was recognized as the organization that contributed the most to the microinsurance industry.

Sections 3.4.1, 3.5.1, and 3.6 assess the relationship among sources, countries, keywords, authors, cited sources, and affiliations. Figure 11 illustrates the connections between authors, sources, and keywords. The analysis established that most of the authors have considered microinsurance as their keyword, and most of their research on microinsurance has been published in sources such as Geneva Papers on Risk and Insurance, Enterprise Development and Microfinance, and World Development. As well as 'microfinance', 'health insurance, 'index insurance, 'insurance, 'poverty', 'microcredits', and 'risk' are closely related keywords with microinsurance that are used by different authors. Additionally, David M. Dror and M.R. Carter focused on many of these topics. Figure 14 analyzes the link between keywords, countries, and authors. The analysis revealed that the countries with the most research on microinsurance were the USA, India, the United Kingdom (UK), Switzerland, the Netherlands, and Germany. Furthermore, this analysis confirms that most of the countries have considered microinsurance as their keyword. However, in some articles, the term microinsurance is used differently as 'micro insurance' and 'micro-insurance'. Especially in India, the term micro insurance and most of Malaysia's research have focused on the topic of microfinance. Furthermore, most of the Indian studies were led by David M. Dror. As well, David M. Dror has conducted very few studies for the USA, Switzerland, and Germany and none for the United Kingdom (UK). Figure 15 illustrates the link between the sources, the countries, and the authors. Analyze signifies that India performed well with the significant contributions of DM Dror, P Panda, and A Majumdar and mainly published these studies in *Geneva papers on Risk and Insurance: Issues and Practice*, *Health Policy and Planning*, and *International Social Security Review*. The USA also performed well with the support of seven authors and diversified the sources by publishing their research in different top publishing journals. Switzerland has main authors such as DM Dror, A Majumdar, M Eling, C Churchill, and C Biener, who published mainly in *Geneva Papers on Risk and Insurance: Issues and Practice* and *Journal of Enterprise Development and Microfinance*. Similarly, Germany gets contributions from all the main authors used by Switzerland, in addition to P. Panda, while publishing their research work in five journals. From a publication source perspective, the most published journal, *Geneva Papers on Risk and Insurance: Issues and Practice*, is primarily contributed by authors from India, the USA, and China, as well as from Switzerland, Germany, the Netherlands,

the UK, South Africa, and Australia. Publications from other sources are disseminated at random to several top publishing countries.

Word cloud map analysis and co-occurrence analysis are used to express research themes and trending topics in the area of microinsurance. In addition, a thematic map analysis was carried out to inform academics and stakeholders about the potential for future research growth in each field's theme areas. Topics such as microfinance, micro-insurance, insurance, health insurance, microcredit, health microinsurance, and index insurance are frequently used keywords in microinsurance publications. Microinsurance is related to microcredit, microsavings, risk management, agriculture, resilience, and consumer protection. As well, microfinance is closely related to microinsurance, poverty, insurance, and sustainability. Financial literacy and consumer protection are potential topics that need to be more closely associated with microinsurance, and more effort is needed to develop these themes to make more connections to microinsurance. This work must be done because financial literacy, a recognized field, can contribute significantly to the structure, future, and sustainable development of microinsurance.

CONCLUSION

Using a bibliometric analysis, this work has sought to present a thorough overview of all scientific works on the subject of microinsurance over time. For this study, 305 documents in total were taken from the Scopus database. Reporting on significant elements of study in the subject, such as the most influential authors, publications, institutional affiliations, and geographic diversity, this study makes several notable improvements to the body of knowledge. To understand from historical evolution to recent development, we further examined the most significant keywords in this research area, their conceptual structure, and research dynamics.

The first objective was achieved by analyzing the annual scientific production. The second objective was achieved by finding the most published author, publication source, productive country, and organization that contributed to the microinsurance industry. The three-field plot in Biblioshiny is utilized to achieve the third objective. Word cloud map analysis, co-occurrence analysis, and thematic map analysis were carried out to achieve the fourth objective.

Finally, this investigation has produced a number of theoretical ramifications. To the best of our knowledge, this is the first study to analyze the older

literature from 1999 to 2022 using a bibliometric analysis in order to examine the origins of the microinsurance literature. The survey also looked at the most popular journals, countries, keywords, and authors, as well as future research on the topic of microinsurance.

LIMITATIONS OF THE STUDY

The primary limitation of this study is that significant works that are indexed in other important databases (like the Web of Science) are not included. Additionally, just the keyword "microinsurance" was used to search for papers; other pertinent keywords were not considered. To simplify the analysis and make it simpler for the authors to interpret, only one keyword was chosen. As a result, an additional study can be done to obtain a more comprehensive perspective by considering other terms that are closely connected, such as inclusive insurance, insurance for the informal sector, index insurance, and microfinance.

FUTURE RESEARCH DIRECTIONS

This study integrated existing studies from all the previous literature available in the Scopus database on microinsurance and provided comprehensive knowledge and current research trends in the microinsurance literature to stimulate future research. Accordingly, future research may focus on the role of microinsurance in sustainable development, the impact of financial literacy and consumer protection on microinsurance development. In addition, it may be important to develop broader research collaborations between academics and institutions in order to have a more global impact on microinsurance.

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