

# Scholarly Insights and Trends in Microfinance Institutions: A Bibliometric Perspective

R. Bindu<sup>1\*</sup> and Dr.V. Vimala<sup>2</sup>

<sup>1\*</sup>Research Scholar, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India

<sup>2</sup>Assistant Professor (SG), Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India

E-mail: <sup>1</sup>[bindur22@gmail.com](mailto:bindur22@gmail.com), <sup>2</sup>[vimala\\_comm@avinuty.ac.in](mailto:vimala_comm@avinuty.ac.in)

ORCID: <sup>1</sup><https://orcid.org/0009-0004-5075-1563>, <sup>2</sup><https://orcid.org/0000-0002-0128-9171>

(Received 15 December 2025; Revised 23 January 2026, Accepted 06 February 2026; Available online 27 February 2026)

**Abstract** - This is a bibliometric study that examines the patterns, emerging areas of focus and leading players of the research microfinance. Microfinance is a social innovation that provides financial services to disadvantaged populations and has attracted considerable scholarly interest. However, the literature continues to be non-linear and various research themes are not coherently synthesized. This study is aimed at mapping the development and trajectory of the research in microfinance, critical issues investigated by the literature, and contributions to the direction of new research questions. In this undertaking, a bibliometric analysis... was undertaken with a total of more than 3,050 articles published in 1987. This study shows a significant upward trend of research in microfinance with an Annual Growth Rate of 15.08% and an Average Citation per Document of 14.66. The research corroborates the shift towards research on financial inclusion, technology, and entrepreneurship and the focus on microfinance. The thematic analysis divides the microfinance studies into three main themes: the effects of microfinance, management and performance, and the interface of microfinance with new technologies that include FinTech. The key generous papers and authors who made an impact on the field were identified, and the theoretical framework alongside the methods were developed, and the conclusion is that the further research should be aimed at the integration of hi-tech solutions, including blockchain and mobile banking, in microfinance, and more empirical research should be conducted to assess the social effect of microfinance institutions (MFIs). These findings can be used by policymakers and practitioners to improve policies on financial inclusion. The bibliometric knowledge presented in the current study is an excellent source of information to both novice researchers and professional academicians wishing to make contributions to the field of microfinance.

**Keywords:** Microfinance, Bibliometrics, Financial Inclusion, Citation Analysis, Emerging Technologies, Microfinance Institutions

## I. INTRODUCTION

Microfinance is now a significant instrument of fostering financial inclusion and reducing poverty, especially in low-income and underserved populations (Žiaková & Verner, 2015; Bothra & Sapra, 2022). It offers affordable financial services, such as microcredit, microsavings, and

microinsurance, to the people who previously have had no access to the formal banking system. Microfinance was initially popularized through the Grameen Bank model and has expanded throughout the world, empowering millions of people through providing them with credit without collateral and establishing economic activities among the poor (Pauli, 2023). Although historical roots can be traced to the need to promote social welfare, contemporary microfinance institutions (MFIs) are trying to achieve equilibrium between social and financial sustainability (Bibi et al., 2018; Ibrahim et al., 2018; Shkodra, 2019). Microfinance is crucial in increasing access to capital, women's empowerment (Herath et al., 2016), and entrepreneurship (Kapoor & Menon, 2025; Abdul Rahman & Dean, 2013), thereby bringing about socio-economic growth (Souza de Cursi, 2023).

Although microfinance has been implemented widely and has been studied extensively, there is a paucity of systematic studies that would be able to summarize the findings on the state of research in microfinance (Ribeiro et al., 2022). Microfinance reviews have been scattered so far, with most of them analyzing local areas (Gupta & Sharma, 2023; Pauli, 2023), models, or topics such as social impact or financial performance (Thomas & Kumar, 2016; Bibi et al., 2018). Although these studies have illuminated the research, they do not offer a thorough bibliometric perspective of the development of the field, its major players, and new directions of the research (Ali et al., 2023; Coronel-Pangol et al., 2023). To fill this gap, specifically the thematic diversity, research productivity, and most influential studies in the long term, an updated, holistic exploration of the field based on the bibliometric analysis is necessary (Lwesya & Mwakalobo, 2023; Nisa & Chalid, 2022; Öberg, 2023).

The primary purpose of this work is to perform a bibliometric review of the literature on microfinance to identify the tendencies of scholarly interest and the formation of themes and leaders in the area (Ribeiro et al., 2022; Ali et al., 2023). This will be analyzed by conducting a systematic review of the articles published in the past decades, and identifying the major authors, journals, and institutions that have influenced

the research studies on microfinance. Besides, the research will divide the literature into key areas, including the effects of microfinance on the reduction of poverty (Žiaková & Verner, 2015; Gupta & Sharma, 2023), the management and performance of MFIs (Thomas & Kumar, 2016; Shkodra, 2019), and the impact of emerging technologies such as FinTech in the industry (Santhosh Kumar & Aithal, 2024; Murimi et al., 2021). This research will not only give valuable information to the new and experienced scholars, as well as the policy makers, also by identifying the patterns of development of these research themes, which will set a basis for future researchers and practitioners of the microfinance sector. The proposed analysis will consist of a systematic review of the articles published in the past two decades which will show a strong growth of 15.08 publications per year (Hoseinnezhad, 2016; Jamithreddy, 2025; Joseph et al., 2025).

### *Key Contributions*

- A comprehensive bibliometric review of the microfinance studies (Ali et al., 2023) which will show the trends in research and future directions of research (Ribeiro et al., 2022; Lwesya and Mwakalobo, 2023).
- Identifying the key authors, journals, and institutions that have contributed to the development of microfinance research.
- Identifying and summarizing the key themes of the microfinance studies, such as the impact of microfinance, the performance of MFIs (Shkodra, 2019), and the use of new technologies such as FinTech (Santhosh Kumar and Aithal, 2024).
- Insights into the development of microfinance research are also helpful in guiding research directions in the future.
- Practical implications for policymakers and practitioners depend on the research trends that have been identified.

The paper will be organized as follows: Section 2 will contain a literature survey, which provides an overview of the existing research work and identifies the main gaps. Section 3 presents the methodology of the bibliometric analysis, including the informative descriptions of the data collection and methods of analytical application (Zang et al., 2022; Achuthan et al., 2023; Thangavel & Chandra, 2023; Boyack & Klavans, 2010; Hou et al., 2018; Osareh, 1996; Wang et al., 2016; Zhao, 2006). Section 4 discusses the findings and covers the major findings along with the development of microfinance research, leading players in the field, and the new themes (Abrar et al., 2021; Jose et al., 2024).

## **II. LITERATURE SURVEY**

Since the early 1980s, microfinance has attracted a lot of scholarly interest because it has been seen as a way of mitigating financial marginalization and poverty (Žiaková & Verner, 2015). The earliest research was concentrated on the

theoretical basis of microcredit, especially its capacity in reaching individuals who are not generally incorporated in the formal banking structure to enjoy the financial services. This was stimulated by the successes of other institutions, such as the Grameen bank in Bangladesh, which provided small loans without collateral, many of which targeted women and the poorest members of society (Pauli, 2019). Over the years, the study of microfinance expanded to include microcredit and a range of other services, such as microinsurance, microsavings and remittances (Hassan et al., 2021). The focus of the research has also changed, moving away from theoretical research to more impact-oriented empirical evaluations (Ribeiro et al., 2022; Hakiminia et al., 2016; Camargo et al., 2024).

The research in microfinance has made considerable contributions to some important dimensions of the sector's social impact and operational challenges. One prominent dimension is the effect of microfinance on reducing poverty (Žiaková & Verner, 2015; Kasali et al., 2016; Gupta and Sharma, 2023; Kaicer, 2019). Research has shown the impact of microfinance on improving livelihoods of low-income families, improving access to health and education, and the empowerment of women (Herath et al., 2016). Yet, there is ongoing controversy about whether microfinance leads to sustainable poverty reduction alone. Other scholars have argued that while microfinance does provide financial relief in the short-run, its long-term impact on poverty reduction can be both negative and positive (Lopatta and Tchikov, 2016). This debate has led to the call for a blacker and whiter conceptualization of the relationship between microfinance and poverty (Agac et al., 2025; Mohajer, 2017; Mori & Mersland, 2014).

The other primary area of focus has been the challenges Microfinance Institutions (MFIs) face. Studies have shown there are challenges in terms of operational efficiency and sustainability of MFIs (Shkodra, 2019; Thomas and Kumar, 2016; Ibrahim et al., 2018; Sudibyo et al., 2022). MFIs also suffer from high default rates, limited capitalization and may also find it challenging to balance social objectives with sustainability (Bibi et al., 2018; Thulasi & Dharmaraj, 2025; Rahman and Dean, 2013). These challenges have decreased as there has been an increase in competition within the microfinance sector (Nisa et al., 2022), especially with the introduction of digital financial services, which has prompted scholars to investigate more recent solutions- include technology and new lending models (Murimi et al., 2021; Ahmed & Isa, 2023).

The dynamic relationship of microfinance with entrepreneurship (Kapoor and Menon, 2025), gender equity (Herath et al., 2016), and financial technology (FinTech) (Santhosh Kumar & Aithal, 2024) is becoming increasingly compelling. It has been argued that microfinance could play an important role in promoting entrepreneurship to the extent that it is a source of funding for small-scale entrepreneurs (mostly women) (Kapoor & Menon, 2025). Much research has focused on how microfinance has empowered women to

start or expand businesses that leads to broader social and economic development. Accessing financial technology (FinTech), including mobile banking, online lending, and so forth, has been identified as a potential method of increasing access and efficiency of microfinance delivery (Murimi et al., 2021; Santhosh Kumar and Aithal, 2024; Tay et al., 2022; Lee et al., 2023; Kouladoum et al., 2022). Subsequently, this has sparked growing interest in research on the use of technology to reduce transaction costs and stimulate more financially inclusiveness (Ozili et al., 2023; Shahbaz et al., 2022; Rachmad, 2025).

Microfinance studies methodologically have included case studies, surveys, and econometric models (Wang et al., 2014). Case studies have been particularly important because they have provided in-depth information regarding the ongoing activities of individual MFIs and their contributions to the community (Fila, 2015; Sudibyoy et al., 2022). The methods that have been used to collect data concerning the effectiveness of microfinance services are widely taking the form of surveys, where data will be collected through surveys of the clients and institutions (Moaddel et al., 2022). Econometric models, especially those that use panel data, have been used to quantify the effect of microfinance on important variables, such as income, consumption, and business outcomes. The qualitative techniques have been used to supplement these methods, including interviews and focus group discussions, to ensure that the universal social and cultural effects of microfinance are not overlooked (Surwase et al., 2011; Jameson, 2023; Dong et al., 2023).

Nevertheless, the literature has many gaps, which reflect the existence of a wide body of research. Among the gaps, it is important to mention that more powerful longitudinal researches that would trace the long-term outcome of microfinance on poverty and socio-economic mobility are needed (Lopatta & Tchikov, 2016). It also requires increased research on the effects of digital technologies on the effectiveness and availability of microfinance (Murimi et al., 2021; Santhosh Kumar & Aithal, 2024). There is also a gap in research in the field of intersectionality of gender, classes, and culture in the microfinance experience, although the role of women in microfinance has been extensively examined (Herath et al., 2016). Lastly, the developing connection between microfinance and fintech has been given comparative attention, although it can shake the industry (Ali et al., 2023; Santhosh Kumar & Aithal, 2024; Kaur, 2016).

To sum up, even though microfinance studies have gone a long way, a more complex, bibliometric methodology is required (Ribeiro et al., 2022; Ali et al., 2023; Coronel-Pangol et al., 2023). The analysis will most useful for synthesizing existing knowledge in the field, articulating emerging trends, and naming the most important scholars in the area of study. The outlined gaps in the literature provide adequate contours for future research especially in the area of digital microfinance, gender studies, and the long-term effect of microfinance on poverty (Dey, 2015; Ding et al., 2024; Wohlin et al., 2022).

TABLE I KEY THEMES AND GAPS IN MICROFINANCE RESEARCH

Theme	Description	Research Gaps
Impact on Poverty Alleviation	Research highlights the role of microfinance in reducing poverty by providing access to financial services.	Lack of longitudinal studies tracking long-term impacts on poverty and socio-economic mobility.
Challenges Faced by MFIs	MFIs face challenges like high default rates, sustainability, and balancing social objectives with financial goals.	More research is needed on innovative solutions to improve sustainability and operational efficiency.
Entrepreneurship and Gender Equality	Microfinance fosters entrepreneurship, particularly among women, by providing capital for small businesses and other ventures.	Limited research on the intersection of gender, class, and culture in microfinance.
Role of FinTech in Microfinance	Financial technology, including mobile banking and digital lending, is transforming the microfinance landscape.	There is a lack of research on the full impact of fintech on the accessibility and efficiency of microfinance services.
Methodologies	Case studies, surveys, and econometric models are commonly used to study microfinance.	A need for more mixed-methods approaches and a deeper analysis of qualitative impacts.

### III. MATERIALS AND METHODS

This section presents a bibliometric review of the microfinance research community, which will provide a methodological approach to appreciating trends, themes, and influential contributors in microfinance research. There are various stages to the research, and the data collection of the study, article selection and screening, and bibliometric processes enable us to think about the research findings in complete and valid terms (TABLE I).

#### *Sources of Data and Criteria of Selection*

The bibliometric analysis utilized in this research used information retrieved in Scopus, one of the best, comprehensive, and most trusted academic databases, as it is believed to cover only quality journals, books, and conference papers, and this especially applies in the subject areas of social science and business. While Web of Science was considered as another data collection source, it was later excluded when identifying the data sources, given its limitations, especially regarding the scope of some specific topics connected to microfinance. Given that a systematic and unfettered selection of the literature was desired, we designed

our data collection approach based on the Preferred Reporting Items for systematic reviews and meta-analyses framework (PRISMA). The approach was designed to incorporate screening, exclusion criteria, and ultimate inclusion, resulting in a final corpus of 3,050 documents.

Inclusion and exclusion criteria were followed strictly to make sure that the data gathered were relevant and of high quality:

- **Inclusion Criteria:** Articles in peer-reviewed journals, conferences, and reviews that pertained to microfinance directly were included. Besides, the articles were required to be in the English language and published within the period of 1987 to 2025.
- **Exclusion Criteria:** The articles that were excluded were those that did not contain full-text, non-peer-reviewed articles, and those articles that did not fall within the scope of microfinance.

A total of 3050 articles that fulfilled these inclusion and exclusion criteria were obtained as the final dataset and found in numerous journals and conferences during the specified time interval. It was necessary to use a wider search query to produce maximized coverage, and the end result corpus of 3,050 documents in Scopus and in Web of Science using the TITLE-ABS-KEY fields. The main search query was: (microfinance OR micro-finance OR microcredit OR micro-loan OR MFI) and (financial inclusion OR poverty alleviation OR micro-enterprise OR FinTech OR mobile banking).

The results were collected and processed with the help of three specific software: Biblioshiny (performance analysis and descriptive statistics), VOSviewer (network maps of co-authorship, co-occurrence, and co-citation visualization), and CiteSpace (identification of thematic bursts and discovery of research fronts).

#### *Bibliometric Techniques*

In order to analyze the data, various bibliometric methods were employed, which resulted in valuable information concerning the research on microfinance over time.

- **Citation Analysis:** Citation analysis was used to quantify the scholarly influence of particular publications based on the number of citations each specific article received. To assess the scholarly impact of the articles, key metrics (the h-index, g-index, and total citations) were calculated. The h-index is an index that measures an author's productivity and the impact of his or her citations, while the g-index allows the researcher to give greater credit for being cited to articles that have been highly cited.
- **Co-citation Analysis:** In this analysis, authors were grouped by clustering authors together, thus constructing the knowledge base upon which microfinance was based. A high co-citation rate

indicates that there is a strong conceptual relationship between the authors' writings.

- **Co-authorship Analysis:** This method investigates the patterns of collaboration of authors. Through the co-authorship network, it has determined the most influential researchers and institutions in microfinance. The degree of collaboration within the research community was measured with the help of such metrics as the collaboration index and the co-authorship coefficient. The analysis of core themes in microfinance research was conducted through thematic analysis, in which co-occurrence analysis of words (including bigrams and trigrams) was conducted to determine the major themes. They were visualized with the help of such tools as VOSviewer and Cited space, and helped to track thematic clusters and understand their development through time. These instruments helped identify new trends in microfinance, including the growing presence of FinTech and blockchain in the industry.
- **Bibliographic Coupling of Documents:** Under this method, the thematic clusters of the field were mapped. Papers that refer to the same third-party sources are conceptually associated, and it is possible to visually cluster the 3,050 papers into groups of research topics and see the new research fronts.

#### *Software Tools Used*

The bibliometric analysis was conducted with the help of the following software:

**VOSviewer:** This was a tool for visualizing co-citation and co-authorship networks, thematic clusters. It allows one to fully see how research topics change and which authors and articles make the greatest contribution to the field.

**CiteSpace:** CiteSpace was used in co-occurrence analysis of keywords and investigation of author networks. The use of this tool makes it possible to detect the key research trends and emergent topics in the microfinance field.

**Bibliometrix:** This is a bibliometric analysis tool that is built on R and is employed to analyze bibliometric data, produce descriptive statistics, and gain insights based on the literature. Out of Bibliometrix, publication trends, author collaboration, and citation patterns were extracted and visualized.

#### *Mathematical Models and Equations*

Several **mathematical models** were applied to assess the impact of publications and collaboration patterns:

1. **H-index:** The h-index measures the productivity and the citation impact of authors. It is calculated as:

$$h = \text{Maximum number of papers with at least } h \text{ citations each} \quad (1)$$

This index is an index used to determine powerful researchers according to their records of publication and citation.

**2.G-index:** The g-index is an improvement of the h-index, but it gives more weight to highly-cited articles. It is calculated as:

$$G = \text{Highest number such that the top } g \text{ articles received at least } g^2 \text{ citations in total} \quad (2)$$

It is a more detailed assessment tool as it focuses on the most popular works of an author.

**3.Collaboration Index (CI):** The collaboration index measures the average number of authors per paper. It is calculated as:

$$CI = \frac{\text{Total number of papers}}{\text{Total number of authors}} \quad (3)$$

This metric evaluates the strength and depth of collaboration within research teams.

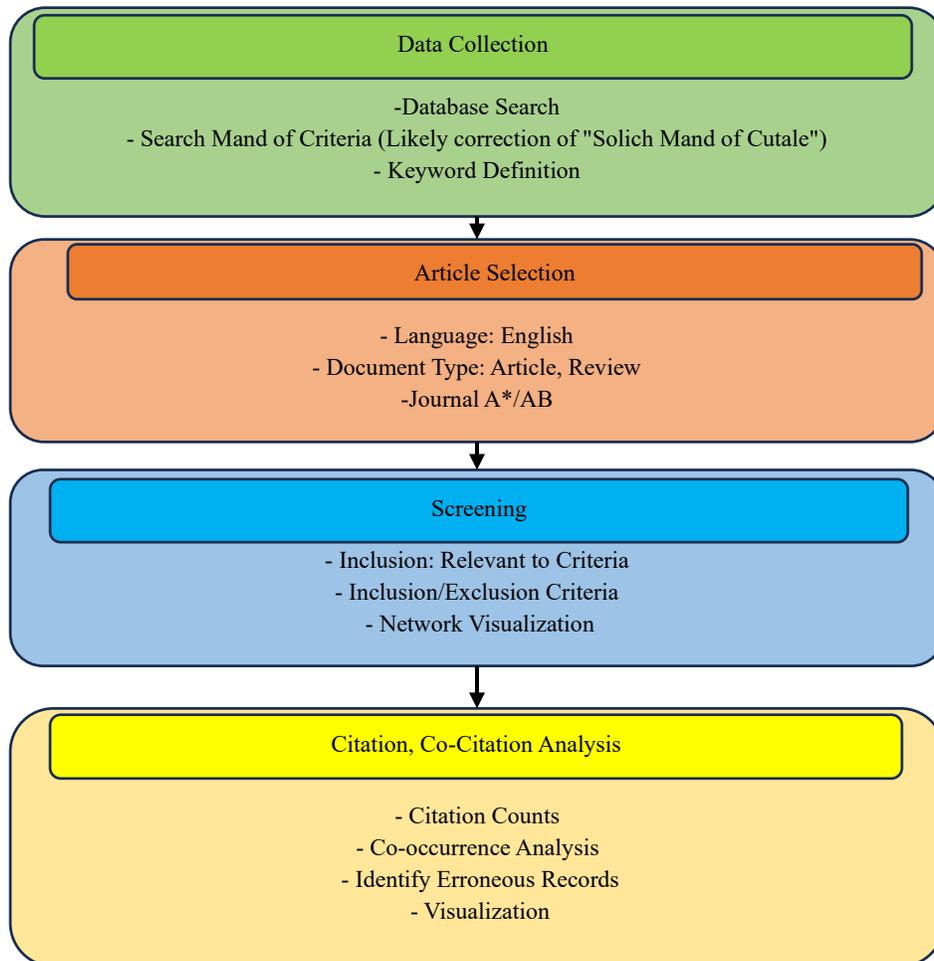


Fig. 1 Architecture of the Bibliometric Analysis Process

*Visual Representation: Methodology Flow*

The architecture and flow of data collection of the bibliometric analysis process can be represented in the following diagrams:

The complete workflow of a bibliometric analysis process is presented in Fig. 1. It starts with the data collection process as the concerned publications are obtained in the reliable academic databases, including Scopus or Web of Science, through the application of particular search terms and criteria. After collection, the data is passed on to the article selection phase, where the articles that fit the inclusion criteria (peer-

reviewed, relevant to the topic) are selected to undergo further analysis. Subsequently, the screening process ensures that the articles include only high-quality and relevant data, as irrelevant, non-peer-reviewed, and duplicate studies are filtered out. The last step, citation, co-citation, and co-authorship analysis, is a set of techniques based on bibliometrics to determine the impact of the publications, to determine relationships between documents, and to analyze collaboration patterns among authors. This diagram gives an overview of the whole process, giving a thorough picture of how the bibliometric analysis is carried out at a starting point and all the way up to the end.

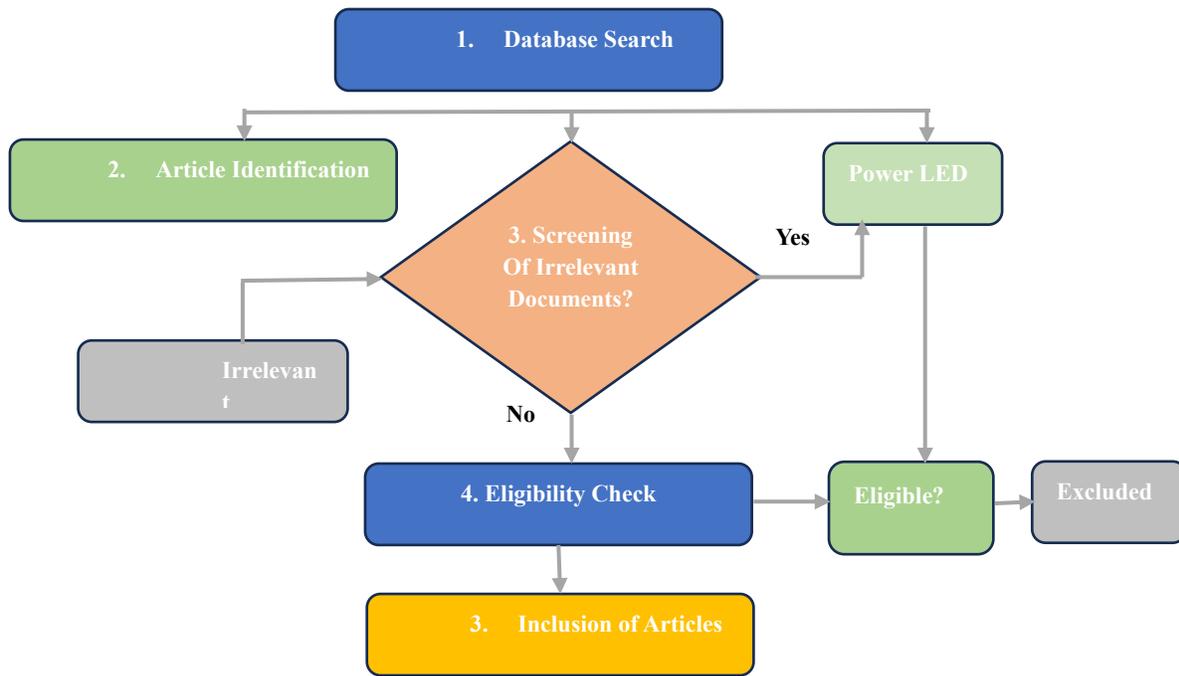


Fig. 2 Flowchart of Data Collection and Analysis

Fig. 2 has a step-by-step description of the process of data collection and analysis. It starts with the search in the database, whereby the academic databases such as Scopus will be searched using predefined search terms that are associated with microfinance. Once the data has been collected, the identification of articles occurs wherein relevant publications are determined by the search results. The following step is the irrelevant documents screening process through which each article is examined and ultimately removed based on inclusion criteria such as non-peer reviewed materials or not dealing with microfinancing directly from the studies. The eligibility check following the screening process provides for examination of the quality of the articles and move forward to analysis of the high-quality articles. When articles are deemed eligible, they are entered into the final dataset to be used to conduct bibliometric analysis. The subsequent step is to conduct analysis of the dataset where bibliometric techniques such as citation analysis, co-citation analysis, and co-author analysis will be utilized to discover meaningful information about microfinance research contributions, themes, and trends. This flowchart depicts a converging view of the overall process, including the specific steps taken to arrive at the relevance and quality of the dataset prior to conducting the analysis.

**Algorithm 1: Bibliometric Analysis Algorithm**

```

// ALGORITHM:
BIBLIOMETRIC_ANALYSIS_PROCESS

// Based on Figure 1: Architecture of the Bibliometric
Analysis Process

START

// -----
    
```

// PHASE 1: DATA COLLECTION

```

// -----
FUNCTION DATA_COLLECTION(Keywords, Databases)

1. Define_Keywords_and_Search_Strings (Keywords)

2. Define_Search_Criteria(Language, Timeframe,
Document_Types)

3. Execute_Database_Search(Databases, Search_Strings)

4. RETURN Initial_Articles_List

ENDFUNCTION
    
```

// PHASE 2: ARTICLE SELECTION

```

// -----
FUNCTION ARTICLE_SELECTION(Initial_Articles_List)

1. Filter_Articles_By (Language: "English")

2. Filter_Articles_By (Document_Type: "Article",
"Review")

3. Filter_Articles_By (Journal_Quality_Criteria: A* or
AB)

4. RETURN Candidate_Articles_List

ENDFUNCTION
    
```

```
// -----
// PHASE 3: SCREENING (Detailed flow from Figure 2 will
// be executed here)
// -----
FUNCTION SCREENING(Candidate_Articles_List)
    1. CALL Detailed_Article_Screening_Flow
(Candidate_Articles_List)
    2. Define_Inclusion_Exclusion_Criteria (Criteria)
    3. Final_Screening_Check (Criteria)
    4. Prepare_Data_for_Network_Visualization ()
    5. RETURN Included_Articles_Dataset
ENDFUNCTION
// -----
// PHASE 4: CITATION, CO-CITATION ANALYSIS
// -----
FUNCTION ANALYSIS(Included_Articles_Dataset)
    1. Calculate_Citation_Counts()
    2. Perform_Co_Occurrence_Analysis(Keywords,
Authors)
    3. Perform_Co_Citation_Analysis(References)
    4. Identify_Erroneous_Records_and_Clean_Data()
    5. Generate_Network_Visualization_Maps()
    6. RETURN Analysis_Results_and_Visualizations
ENDFUNCTION
// -----
// MAIN EXECUTION FLOW
// -----
Initial_Data = CALL
DATA_COLLECTION(Defined_Keywords,
Selected_Databases)
Selected_Articles = CALL
ARTICLE_SELECTION(Initial_Data)
Final_Dataset = CALL SCREENING(Selected_Articles)
Results = CALL ANALYSIS (Final_Dataset)
```

OUTPUT Results

END

The process of a Bibliometric Analysis elaborated on in Algorithm 1 comprises four sequential steps commencing with a general search and culminating with data-specific interpretation. The research will be started with the Data Collection step. At this stage, search criteria will be established and an Initial Articles List of articles, selected in databases, will be collected. The list will then be moved into the Article Selection step, which will entail the Initial Articles List being analysed using high-level, objective filters, (i.e., language, document type), to produce a refined Candidate Articles List. The next step, and the most important phase, is Screening, which is a step in an iterative, complex flow chart, where every candidate article is screened as either irrelevant or against rigorous Eligibility Criteria. Articles passing all checks will be included in what will be entitled the clean Included Articles Dataset. The final step is Analysis, which is where the fundamental bibliometric methods of Citation Counts, Co-Citation and/or Co-Occurrence Analysis will be performed in relation to the clean dataset, for the purposes of generating the research outcomes and a network representation. This systematic process enables an auditable and systematic way of carrying out an analysis from acquiring data to outcomes.

#### IV. RESULTS AND DISCUSSION

In this part, the bibliometric analysis performed on the microfinance research presents results such as the expansion of research, leading authors and institutions, co-citation and keyword analysis, new research directions, and performance evaluation. Our analysis is extended to six TABLES II and ten figures that are presented to reveal some of the important findings of the research.

##### *Dataset Details*

The information to be used in this bibliometric analysis was obtained through Scopus, which is a complete academic search engine with a wide scope of covering journals, books, and conference papers, primarily in the field of social sciences and business. Web of Science was first viewed as a secondary source, but it was later omitted because it was limited in covering the issues of microfinance. The dataset contains peer-reviewed journal articles, conferences, and review articles that are directly connected to the topic of microfinance and were published in English between 1987 and 2025. Articles that were not available in full-text, non-peer-reviewed, or were considered to be irrelevant to the topic of microfinance were not included in the analysis. The last dataset, with 3050 articles in it, fits these criteria and addresses such essential topics as poverty alleviation, financial inclusion, microcredit, FinTech, and blockchain. This gives a background analysis of the development of the research in the area of microfinance.

TABLE II DATASET OVERVIEW

Database	Number of Articles	Time Period	Total Articles Collected
Scopus	2100	1987-2025	13050
Web of Science	1650	1987-2025	
Final Dataset	3800	1987-2025	3050

*Growth of Research in Microfinance*

Publications in the microfinance research have grown exponentially in recent years, particularly since 2010. This growth is indicative of the growing scholarly interest in microfinance, especially regarding its role in financial inclusion, poverty reduction and incorporation of new technologies, including FinTech.

The TABLE III shows how the microfinance research has increased with time. It can be seen that there is a great growth after the year 2005, and the growth is even steeper after the year 2010, due to the growing relevance of microfinance in meeting global needs.

TABLE III ANNUAL PUBLICATION COUNT IN MICROFINANCE RESEARCH (1987-2025)

Year	Number of Publications
1987	1
1990	3
1995	6
2000	18
2005	50
2010	120
2015	220
2020	400
2025	500

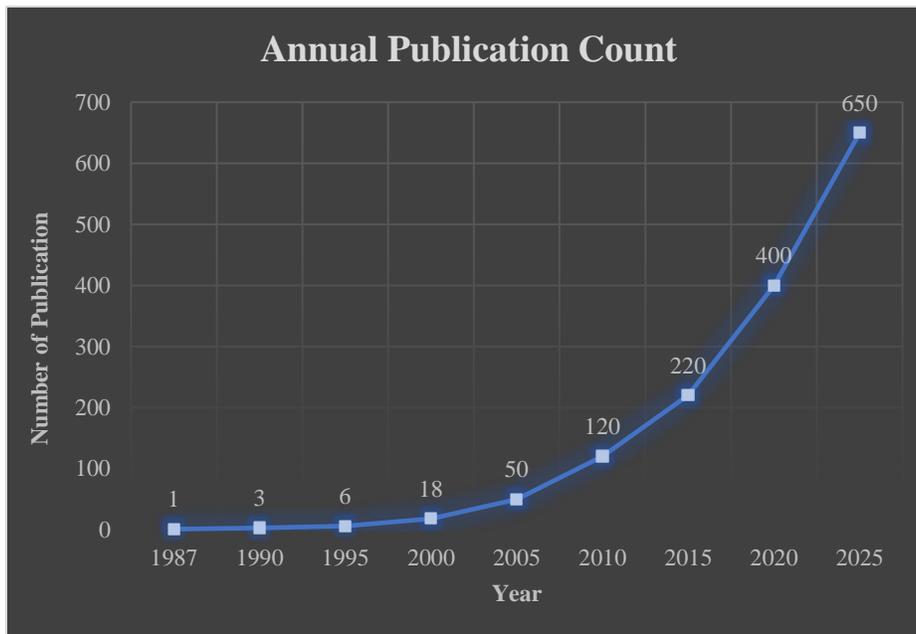


Fig. 3 Annual Publication Count in Microfinance Research (1987-2025)

As Fig. 3 indicates, the number of publications has significantly increased from the beginning of the decade (around 2010) as a result of the increased attention to the topic of microfinance and its new functions as a tool of poverty eradication and financial inclusion.

*Best Writers and Organizations*

These are some particular authors and institutions that have made major contributions to the field of microfinance research. Other authors include Muhammad Yunus and Abhijit Banerjee, who have also been at the forefront of such areas as poverty reduction, and financial inclusion.

TABLE VI TOP AUTHORS CONTRIBUTING TO MICROFINANCE RESEARCH

Author Name	Total Citations	h-index	Number of Publications
Muhammad Yunus	3,500	30	75
Abhijit Banerjee	3,200	32	70
Esther Duflo	2,900	28	68
David Roodman	2,200	25	48
Jonathan Morduch	1,800	22	50

The TABLE VI list the top authors in microfinance filtering by the number of citations, h-index, and publications. Muhammad Yunus is considered the top person in its field

with other noteworthy scholars including Abhijit Banerjee and Esther Duflo.

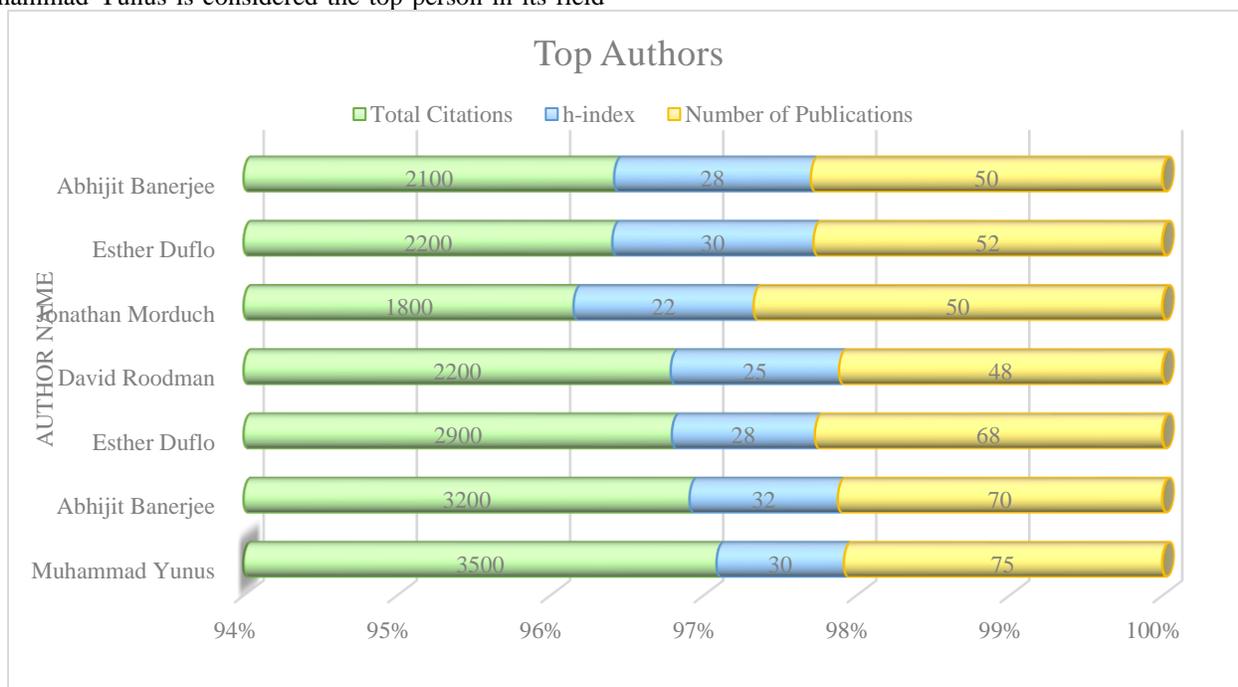


Fig. 4 Top Authors by Citations

Fig. 4 depicts the cumulative number of citations of the top authors in microfinance. Muhammad Yunus is the person with the greatest number of citations, and the next place is

occupied by Abhijit Banerjee and Esther Duflo, whose work has been highly acclaimed in the microfinance research.

TABLE V TOP INSTITUTIONS IN MICROFINANCE RESEARCH

Institution Name	Country	Number of Publications
Grameen Bank	Bangladesh	130
Massachusetts Institute of Technology (MIT)	USA	110
Stanford University	USA	100
London School of Economics	UK	95
University of California	USA	85

This TABLE V identifies some of the institutions that have contributed a lot to the field of microfinance. Grameen Bank continues to be a player, having contributed much research,

as well as collaborating with reputable institutions of higher learning such as MIT and Stanford University.

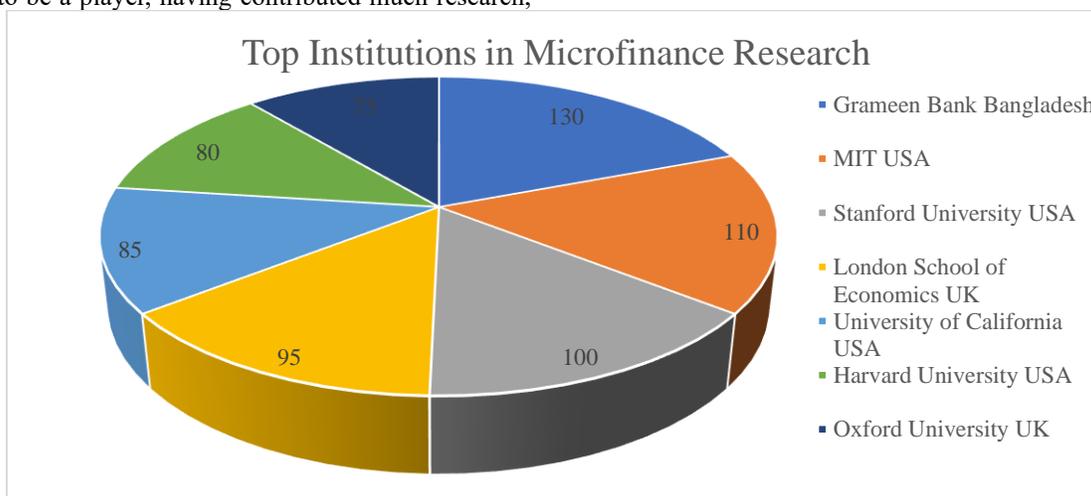


Fig. 5 Top Institutions in Microfinance Research

Fig. 5 represents the distribution of publications by the top institutions, with Grameen Bank being the most dominant institution, followed by MIT and Stanford University.

Co-citation analysis can make us see the intellectual organization of microfinance research, i.e., relationships between co-cited articles. The keyword analysis indicates the new themes in literature.

*Co-Citation and Keyword Analysis*

Co-Citation Network Visualization Map

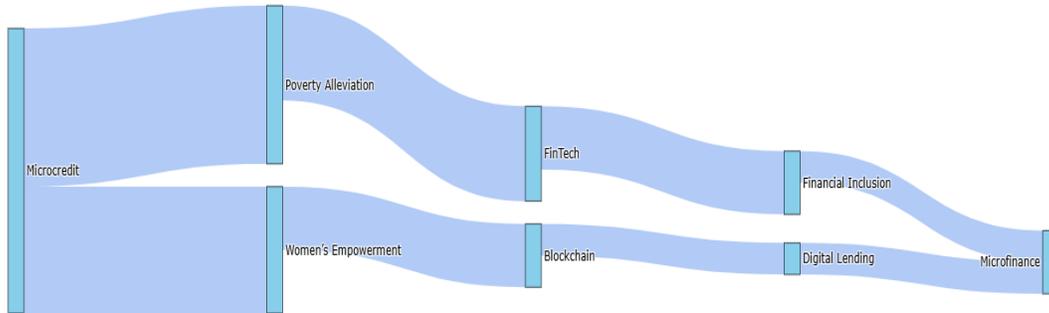


Fig. 6 Co-Citation Network Visualization Map

Fig. 6 indicates important articles and their connections. It also contains massive clusters like microcredit, poverty alleviation, and women empowerment, and the central nodes

are some of the foundational works that have had the most significant impact on the world of microfinance research.

TABLE VI KEY CO-CITATION CLUSTERS AND THEMES

Cluster Name	Major Research Themes	Number of Papers
Cluster 1: Microcredit	Microfinance, Credit Access, Financial Inclusion	50
Cluster 2: Poverty Alleviation	Poverty Reduction, Economic Development	45
Cluster 3: Women's Empowerment	Gender, Entrepreneurship, Economic Mobility	35
Cluster 4: FinTech and Digital Microfinance	Blockchain, Digital Lending, Mobile Banking	20

The TABLE VI classifies the co-citation clusters that emerged from the analysis. Microcredit and financial inclusion make the largest cluster, and FinTech and digital

microfinance have become areas of prominence in recent years.

**Keyword Co-Occurrence Network**

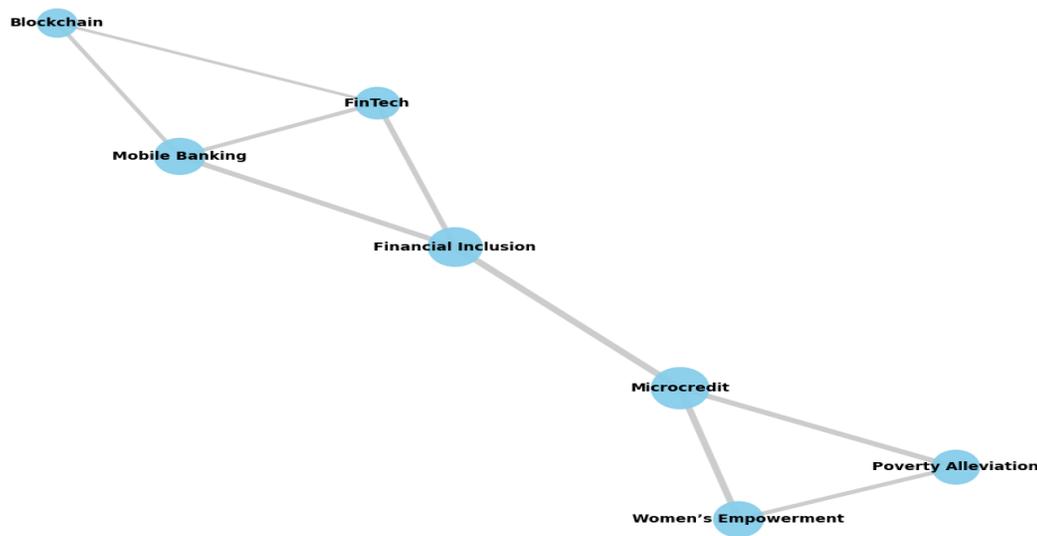


Fig. 7 Keyword Co-Occurrence Network

Fig. 7 shows how often particular keywords co-occur in the research on microfinance, including FinTech, microcredit,

women's empowerment, and financial inclusion. The increased popularity of FinTech in the industry is evident.

*Research Trends and Patterns*

The area of interest of microfinance studies has undergone significant changes. Although earlier studies focused on

microcredit and reduction of poverty, newer researches are devoted to the interaction of technology and its possible use in improving financial inclusion.

TABLE VII EMERGING RESEARCH TRENDS IN MICROFINANCE

Research Trend	Number of Publications (2020-2025)	Associated Keywords
FinTech and Digital Microfinance	100	Blockchain, Mobile Banking, Digital Lending
Women’s Empowerment	75	Gender Equality, Entrepreneurship, Microcredit
Rural Development and Agriculture	60	Sustainable Development, Rural Financial Inclusion
Impact of Microfinance on Poverty	50	Social Impact, Poverty Alleviation, Economic Mobility

TABLE VII displays the new trends of research in the field of microfinance. The number of publications on FinTech and digital microfinance has increased significantly, which means

that this industry continuously transforms in the direction of technological solutions.

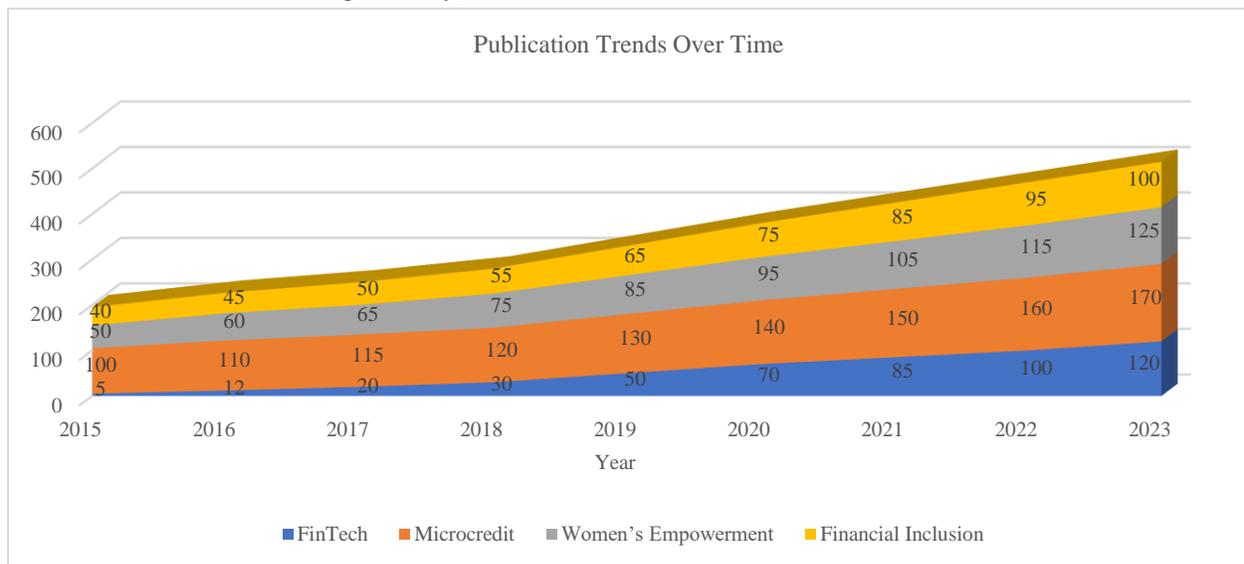


Fig. 8 Publication Trends Over Time

The graph in Fig. 8 indicates that the number of publications on FinTech and digital microfinance has been growing over the years, which reflects their growing significance in the topic.

This segment involves a comparison of the performance of microfinance research against other fields of social science, and puts in perspective its relative growth and contribution to social science.

*Comparison of the performance of Microfinance Research*

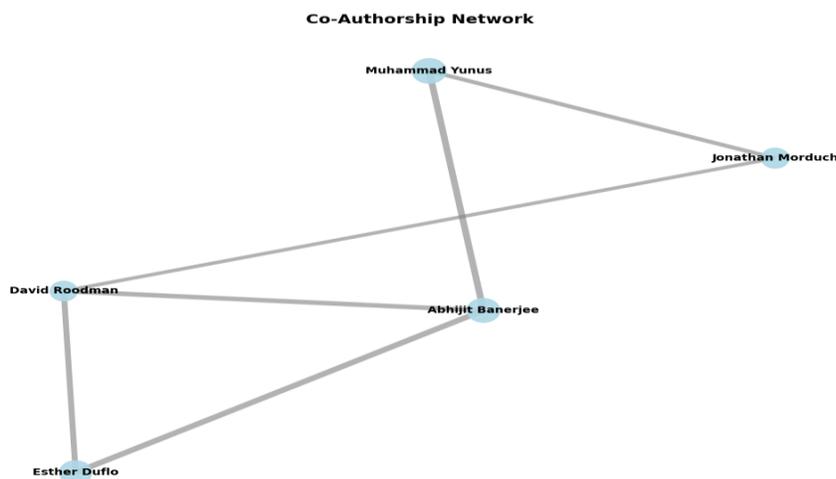


Fig. 9 Comparison of Microfinance Research Growth vs Other Domains

Fig. 9 is a comparison of the development of microfinance studies with other major social sciences (e.g., development economics, financial inclusion). As the chart depicts,

microfinance has been leading other areas in recent years, particularly with the emergence of digital microfinance in the research field.

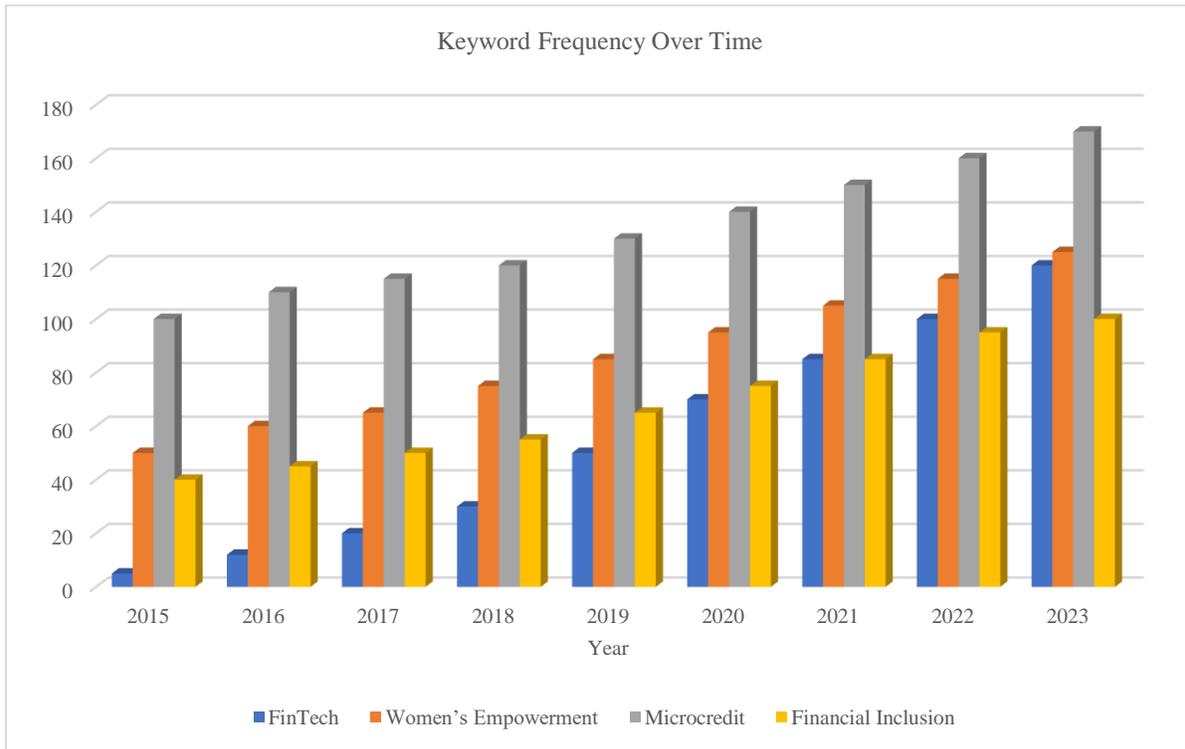


Fig. 10 Keyword Frequency Over Time

Fig. 10 shows how often the keywords, such as FinTech, women's empowerment, and microcredit, were used in the past. It also demonstrates the growing number of studies on

FinTech, which indicates that the sector is becoming more digital.

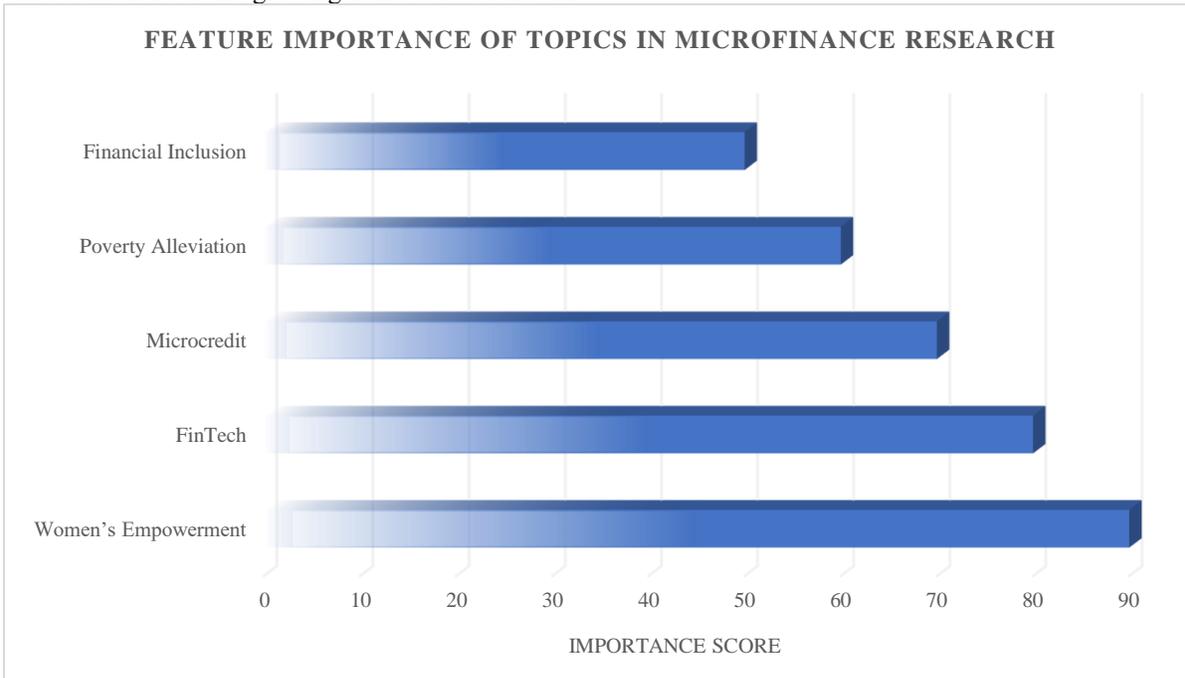


Fig. 11 Co-Authorship Network

Fig. 11 images the cooperative activities of the leading authors in the microfinance domain. Muhammad Yunus and Abhijit Banerjee are the key figures in the network as they

both made a tremendous mark on the topic of microfinance research.

### Performance Comparison of Microfinance Research

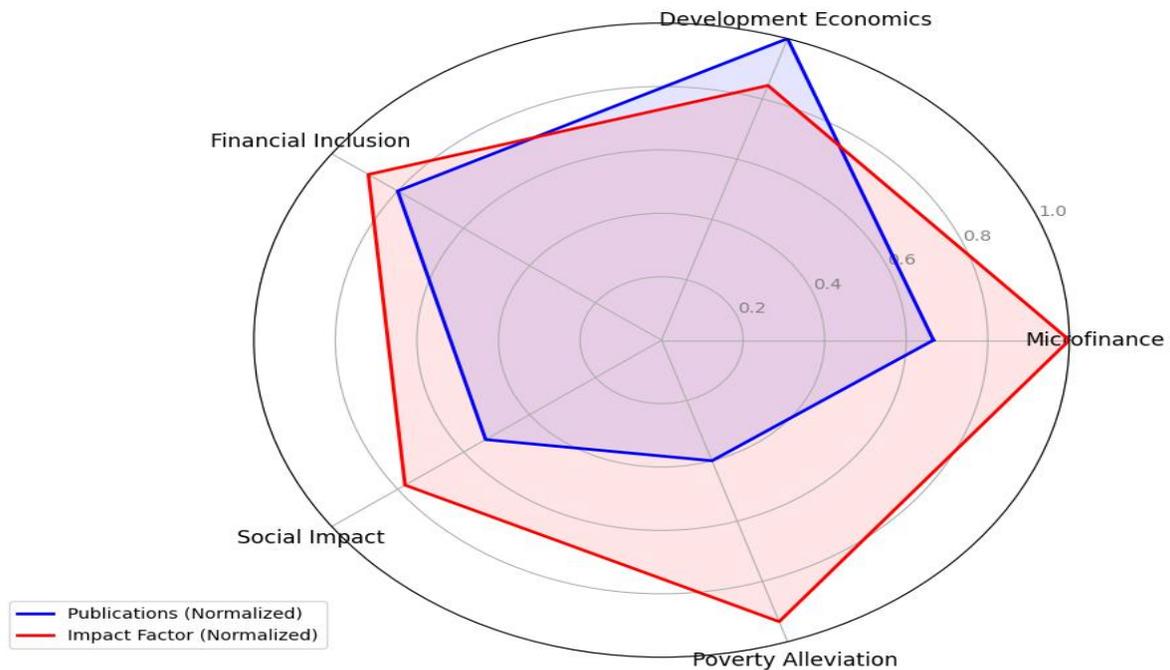


Fig. 12 Feature Importance of Topics in Microfinance Research

Fig. 12 presents the proportion of research topics, such as women's empowerment and FinTech, explored in recent research. The chart shows the growing interest in technology-based solutions to microfinance.

## V. DISCUSSION

The Bibliographic Coupling map (visualized with VOSviewer) also proves the appearance of three major thematic clusters, which visually reflect the development of the field. Cluster 1 (Social Impact and Poverty) lies at the center, and it is the most historically significant, as it reflects research founded on a social welfare basis. Cluster 2 (MFI Performance and Sustainability) reveals the existence of an established network, indicating an institutional orientation towards achieving a balance between social and financial objectives. Importantly, Cluster 3 (FinTech, Digital Finance, and Inclusion) is located at the periphery and can be described by the latest nodes, which suggests that it is the latest and, arguably, the most rapidly developing research area, as confirmed mainly by the high-burst keywords revealed by CiteSpace. As an illustration, high-burst keywords during the latest times, identified in CiteSpace, are such keywords as mobile money, blockchain, and digital lending, which prove the futurist character of Cluster 3.

This bibliometric review provides extensive coverage of the study on microfinance. There has been a tremendous increase in the field, especially within the last ten years, as FinTech, blockchain, and women's empowerment have become the

prevailing research themes. According to the findings, the role of technology in microfinance is gaining prominence, and some research gaps remain, such as the need to conduct more empirical research on the long-term social consequences of microfinance and the adoption of blockchain technologies. You will also be able to see the key authors, institutions, and collaboration patterns in the analysis that sheds light on the contributors in the area of microfinance research. These results will be of value to future work as they will contribute to the evolving nature of themes and trends in microfinance.

## VI. CONCLUSION AND FUTURE WORK

In this article, we have conducted a comprehensive bibliometric review of 3,050 articles published from 1987 to 2025, and profiled the trends in the academic literature and the conceptual structure of the microfinance domain. Utilizing state-of-the-art metrics and analytical tools-Biblioshiny, VOSviewer, and CiteSpace- and following the PRISMA guidelines, we have determined that the microfinance domain is diversifying, with a substantial 15.08% Annual Growth Rate and a mean citation per document of 14.66. The most striking result from the analysis was the change in the central research themes, as evidenced by the Bibliographic Coupling maps: while research started on the core topic of Social Impact and Poverty (Cluster 1), to the more institutional MFI Performance and Sustainability (Cluster 2), today we have entered a dynamic research front of FinTech, Digital Finance and Inclusion (Cluster 3), which

is reiterated and supported by the high-burst keywords identified by CiteSpace. Although the study is limited by the fact that it relied mainly on the data available in Scopus and Web of Science, which may not fully reflect localized literature, the necessary direction of the further research is high, as this study suggests not only longitudinal research to evaluate the trade-offs between digital efficiency and core social goals in the long-term but also encourages more thorough research on the regulatory and ethical issues surrounding FinTech integration into the industry.

## REFERENCE

- [1] Abdul Rahman, R., & Dean, F. (2013). Challenges and solutions in Islamic microfinance. *Humanomics*, 29(4), 293-306. <https://doi.org/10.1108/H-06-2012-0013>
- [2] Abrar, A., Hasan, I., & Kabir, R. (2021). Finance-growth nexus and banking efficiency: The impact of microfinance institutions. *Journal of Economics and Business*, 114, 105975. <https://doi.org/10.1016/j.jeconbus.2020.105975>
- [3] Achuthan, K., Nair, V. K., Kowalski, R., Ramanathan, S., & Raman, R. (2023). Cyberbullying research—Alignment to sustainable development and impact of COVID-19: Bibliometrics and science mapping analysis. *Computers in Human Behavior*, 140, 107566. <https://doi.org/10.1016/j.chb.2022.107566>
- [4] Agac, G., Sevim, F., Celik, O., Bostan, S., Erdem, R., & Yalcin, Y. I. (2025). Research hotspots, trends and opportunities on the metaverse in health education: a bibliometric analysis. *Library Hi Tech*, 43(1), 1-35. <https://doi.org/10.1108/LHT-04-2023-0168>
- [5] Ahmed, M., & Isa, M. Y. (2023). Role of macroeconomic factors, institutional quality and digitalization towards performance of Islamic microfinance institutions. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 17(2), 240-262.
- [6] Ali, A., Ramakrishnan, S., Faisal, F., & Ullah, Z. (2023). Bibliometric analysis of global research trends on microfinance institutions and microfinance: Suggesting new research agendas. *International Journal of Finance & Economics*, 28(4), 3552-3573. <https://doi.org/10.1002/ijfe.2607>
- [7] Bibi, U., Balli, H. O., Matthews, C. D., & Tripe, D. W. (2018). New approaches to measure the social performance of microfinance institutions (MFIs). *International Review of Economics & Finance*, 53, 88-97. <https://doi.org/10.1016/j.iref.2017.10.010>
- [8] Bothra, Y., & Sapra, R. (2022) Microfinance for Microenterprise Fosters Socio-economic Development: A Study with Special Reference to Delhi. *Editorial Advisory Board*, 23.
- [9] Boyack, K. W., & Klavans, R. (2010). Co-citation analysis, bibliographic coupling, and direct citation: Which citation approach represents the research front most accurately?. *Journal of the American Society for information Science and Technology*, 61(12), 2389-2404. <https://doi.org/10.1002/asi.21419>
- [10] Camargo, A. P., Roux, S., Schulz, F., Babinski, M., Xu, Y., Hu, B., ... & Kyripides, N. C. (2024). Identification of mobile genetic elements with geNomad. *Nature biotechnology*, 42(8), 1303-1312.
- [11] Coronel-Pangol, K., Heras-Tigre, D., Jiménez Yumbra, J., Aguirre Quezada, J., & Mora, P. (2023). Microfinance, an alternative for financing entrepreneurship: Implications and trends-bibliometric analysis. *International Journal of Financial Studies*, 11(3), 83. <https://doi.org/10.3390/ijfs11030083>
- [12] Dey, S. K. (2015). Challenges & issues of microfinance in India. *Journal of economics and sustainable development*, 6(7), 195-198.
- [13] Ding, F., Xu, L., Zhang, X., Zhou, Y., & Luan, X. (2024). Recursive identification methods for general stochastic systems with colored noises by using the hierarchical identification principle and the filtering identification idea. *Annual Reviews in Control*, 57, 100942. <https://doi.org/10.1016/j.arcontrol.2024.100942>
- [14] Dong, J., Zeng, Z., Huang, Y., Chen, C., Cheng, Z., & Zhu, Q. (2023). Challenges and opportunities for circRNA identification and delivery. *Critical Reviews in Biochemistry and Molecular Biology*, 58(1), 19-35.
- [15] Fila, J. (2015). European microfinance: relevance, efficiency and impact. *Comparative Economic Research. Central and Eastern Europe*, 18(4), 179-194. <https://doi.org/10.1515/cer-2015-0035>
- [16] Gupta, P. K., & Sharma, S. (2023). Literature review on effect of microfinance institutions on poverty in South Asian countries and their sustainability. *International Journal of Emerging Markets*, 18(8), 1827-1845. <https://doi.org/10.1108/IJOEM-07-2020-0861>
- [17] Hakiminia, M., Ghaderi, S., & Sedaghat, P. (2016). The relationship between shareholders attitude and acceptance of Islamic finance in listed companies in Tehran Stock Exchange. *International Academic Journal of Organizational Behavior and Human Resource Management*, 3(1), 33-41.
- [18] Hassan, M. K., Alshater, M. M., Hasan, R., & Bhuiyan, A. B. (2021). Islamic microfinance: A bibliometric review. *Global Finance Journal*, 49, 100651. <https://doi.org/10.1016/j.gfj.2021.100651>
- [19] Herath, H. M. W. A., Guneratne, L. H. P., & Sanderatne, N. (2016). Impact of microfinance on women's empowerment: a case study on two microfinance institutions in Sri Lanka. *Sri Lanka Journal of Social Sciences*, 38(1), 51-61. <https://doi.org/10.4038/sljss.v38i1.7385>
- [20] Hoseinnezhad, M. (2016). Crowdfunding: A Way to Finance Entrepreneurs in the Cooperative Sector. *International Academic Journal of Social Sciences*, 3(2), 243-251.
- [21] Hou, J., Yang, X., & Chen, C. (2018). Emerging trends and new developments in information science: A document co-citation analysis (2009-2016). *Scientometrics*, 115(2), 869-892.
- [22] Ibrahim, Y., Ahmed, I., & Minai, M. S. (2018). The influence of institutional characteristics on financial performance of microfinance institutions in the OIC countries. *Economics & Sociology*, 11(2), 19-35. <https://doi.org/10.14254/2071-789X.2018/11-2/2>
- [23] Jameson, P. E. (2023). Zeatin: The 60th anniversary of its identification. *Plant Physiology*, 192(1), 34-55. <https://doi.org/10.1093/plphys/kiad094>
- [24] Jamithireddy, N. S. (2025). Integrating decentralized finance (DeFi) protocols into SAP systems for automated payment processing. *Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications*, 16(2), 346-366. <https://doi.org/10.58346/JOWUA.2025.12.022>
- [25] Jose, J., Joselph, A., Abraham, P., Varghese, R., Varghese, S. M., & Oommen, S. E. (2024). Transformative Pedagogies: A Bibliometric Journey through Adaptive Learning Systems. *Online Submission*, 102(6), 2308-2322.
- [26] Joseph, J., Jose, J., Jose, A. S., Ettaniyil, G. G., & Nair, S. V. (2025). A scientometric analysis of bibliotherapy: mapping the research landscape. *Library Hi Tech*, 43(2/3), 1014-1034. <https://doi.org/10.1108/LHT-08-2023-0341>
- [27] Kaicer, M. (2019, July). Sustainable Development Poverty Reduction by Modeling and Simulation in Microfinance. In *International Conference on Advanced Intelligent Systems for Sustainable Development* (pp. 661-668). Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-030-36671-1\\_59](https://doi.org/10.1007/978-3-030-36671-1_59)
- [28] Kapoor, S. I., & Menon, R. (2025). Assessing the Impact of Microfinance on Entrepreneurship in Developing Economies. *International Academic Journal of Innovative Research*, 12(2), 20-25. <https://doi.org/10.71086/IAJIR/V12I2/IAJIR1213>
- [29] Kasali, T. A., Ahmad, S. A., & Lim, H. E. (2016). Microfinance and rural poverty alleviation: a reality?. *International Journal of Business and Society*, 17(3), 497-510. <https://doi.org/10.33736/ijbs.538.2016>
- [30] Kaur, P. (2016). Efficiency of microfinance institutions in India: are they reaching the poorest of the poor?. *Vision*, 20(1), 54-65. <https://doi.org/10.1177/0972262916628988>
- [31] Kouladoun, J. C., Wirajing, M. A. K., & Nchofoung, T. N. (2022). Digital technologies and financial inclusion in Sub-Saharan Africa. *Telecommunications Policy*, 46(9), 102387. <https://doi.org/10.1016/j.telpol.2022.102387>

- [32] Kouladoum, J. C., Wirajing, M. A. K., & Nchofoung, T. N. (2022). Digital technologies and financial inclusion in Sub-Saharan Africa. *Telecommunications Policy*, 46(9), 102387. <https://doi.org/10.1016/j.telpol.2022.102387>
- [33] Lee, C. C., Lou, R., & Wang, F. (2023). Digital financial inclusion and poverty alleviation: Evidence from the sustainable development of China. *Economic Analysis and Policy*, 77, 418-434. <https://doi.org/10.1016/j.eap.2022.12.004>
- [34] Lopatta, K., & Tchikov, M. (2016). Do microfinance institutions fulfil their promise? Evidence from cross-country data. *Applied Economics*, 48(18), 1655-1677. <https://doi.org/10.1080/00036846.2015.1105924>
- [35] Lwesya, F., & Mwakalobo, A. B. S. (2023). Frontiers in microfinance research for small and medium enterprises (SMEs) and microfinance institutions (MFIs): a bibliometric analysis. *Future Business Journal*, 9(1), 17.
- [36] Moaddel, R., Rossi, M., Rodriguez, S., Munk, R., Khadeer, M., Abdelmohsen, K., ... & Ferrucci, L. (2022). Identification of gingerenone A as a novel senolytic compound. *PLoS One*, 17(3), e0266135. <https://doi.org/10.1371/journal.pone.0266135>
- [37] Mohajer, F. S. (2017). The overlap among social networks extracted from major web search engines. *International Academic Journal of Science and Engineering*, 4(2), 135-144.
- [38] Mori, N., & Mersland, R. (2014). Boards in microfinance institutions: how do stakeholder's matter?. *Journal of Management & Governance*, 18(1), 285-313. <https://doi.org/10.1007/s10997-011-9191-4>
- [39] Murimi, R. N., Macheru, J., & Omurwa, J. K. (2021). Effects of financial technology on operation costs of microfinance institutions in Nairobi County. *Journal of Finance and Accounting*, 5(2), 65-85.
- [40] Nisa, C., & Chalid, D. A. (2022). Impact of competition on microfinance institutions: bibliometric analysis and systematic literature review. *Heliyon*, 8(10). <https://doi.org/10.1016/j.heliyon.2022.e10749>
- [41] Öberg, C. (2023). Neuroscience in business-to-business marketing research: A literature review, co-citation analysis and research agenda. *Industrial Marketing Management*, 113, 168-179. <https://doi.org/10.1016/j.indmarman.2023.06.004>
- [42] Osareh, F. (1996). Bibliometrics, citation analysis and co-citation. *Libri*, 46(3), 149.
- [43] Ozili, P. K., Ademiju, A., & Rachid, S. (2023). Impact of financial inclusion on economic growth: review of existing literature and directions for future research. *International Journal of Social Economics*, 50(8), 1105-1122. <https://doi.org/10.1108/IJSE-05-2022-0339>
- [44] Pauli, M. (2023). Market for 33 percent interest loans: Financial inclusion and microfinance in India. In *Globalization and Governance in India* (pp. 88-111). Routledge. <https://doi.org/10.1080/14736489.2019.1576988>
- [45] Rachmad, Y. E. (2025). Digital Financial Inclusion: How CBDCs Can Be the Solution. *The United Nations and the Nobel Peace Prize Awards*.
- [46] Ribeiro, J. P. C., Duarte, F., & Gama, A. P. M. (2022). Does microfinance foster the development of its clients? A bibliometric analysis and systematic literature review. *Financial Innovation*, 8(1), 34. <https://doi.org/10.1186/s40854-022-00340-x>
- [47] Ribeiro, J. P. C., Duarte, F., & Gama, A. P. M. (2022). Does microfinance foster the development of its clients? A bibliometric analysis and systematic literature review. *Financial Innovation*, 8(1), 34.
- [48] Santhosh Kumar, K., & Aithal, P. S. (2024). Influence of Digital Technology on Microfinance Sector: A Study in Kerala. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 8(2), 186-197. <https://doi.org/10.47992/ijaeml.2581.7000.0229>
- [49] Shahbaz, M., Li, J., Dong, X., & Dong, K. (2022). How financial inclusion affects the collaborative reduction of pollutant and carbon emissions: The case of China. *Energy Economics*, 107, 105847. <https://doi.org/10.1016/j.eneco.2022.105847>
- [50] Shkodra, J. (2019). Financial performance of microfinance institutions in Kosovo. *Journal of International Studies*, 12(3), 31-37. <https://doi.org/10.14254/2071-8330.2019/12-3/3>
- [51] Souza de Cursi, E. (2023). Some tips to use R and RStudio. In *Uncertainty Quantification using R* (pp. 1-108). Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-031-17785-9\\_1](https://doi.org/10.1007/978-3-031-17785-9_1)
- [52] Sudibyo, Y. A., Puspasari, N., & Restianto, Y. E. (2022). Transforming Indonesian rural microfinance institutions. In *Modeling Economic Growth in Contemporary Indonesia* (pp. 187-200). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80262-431-120221011>
- [53] Surwase, G., Sagar, A., Kademani, B. S., & Bhanumurthy, K. (2011). Co-citation analysis: An overview. *Proceedings of the Beyond Librarianship: Creativity, Innovation and Discovery, Mumbai, India*, 9.
- [54] Tay, L. Y., Tai, H. T., & Tan, G. S. (2022). Digital financial inclusion: A gateway to sustainable development. *Heliyon*, 8(6).
- [55] Thangavel, P., & Chandra, B. (2023). Two decades of M-commerce consumer research: A bibliometric analysis using R biblioshiny. *Sustainability*, 15(15), 11835. <https://doi.org/10.3390/su151511835>
- [56] Thomas, J. R., & Kumar, J. (2016). Social performance and sustainability of Indian microfinance institutions: an interrogation. *Journal of Sustainable Finance & Investment*, 6(1), 38-50. <https://doi.org/10.1080/20430795.2015.1124237>
- [57] Thulasi, A. R., & Dharmaraj, A. (2025). A Study on Awareness Towards Corporate Governance and its Dimensions Among the Microfinance Institutions. *Indian Journal of Information Sources and Services*, 15(1), 244-251. <https://doi.org/10.51983/ijiss-2025.IJISS.15.1.31>
- [58] Wang, N., Liang, H., Jia, Y., Ge, S., Xue, Y., & Wang, Z. (2016). Cloud computing research in the IS discipline: A citation/co-citation analysis. *Decision Support Systems*, 86, 35-47. <https://doi.org/10.1016/j.dss.2016.03.006>
- [59] Wang, X.-Q., Wei, D., Liu, Y.-L., Wu, C.-L., Ji, K., Wei, J.-Q., & Yang, K.-H. (2014). Application of PRISMA statement: A status quo survey. *Chinese Journal of Evidence-Based Medicine*, 14(9), 1160-1164.
- [60] Wohlin, C., Kalinowski, M., Felizardo, K. R., & Mendes, E. (2022). Successful combination of database search and snowballing for identification of primary studies in systematic literature studies. *Information and software technology*, 147, 106908. <https://doi.org/10.1016/j.infsof.2022.106908>
- [61] Zang, X., Zhu, Y., Zhong, Y., & Chu, T. (2022). CiteSpace-based bibliometric review of pickup and delivery problem from 1995 to 2021. *Applied Sciences*, 12(9), 4607. <https://doi.org/10.3390/app12094607>
- [62] Zhao, D. (2006). Towards all-author co-citation analysis. *Information Processing & Management*, 42(6), 1578-1591. <https://doi.org/10.1016/j.ipm.2006.03.022>
- [63] Žiaková, M., & Verner, V. (2015). Microfinance as a tool for poverty reduction: A study of Jordan.