

Mapping Financial Inclusion and Sustainable Banking Research: A Bibliometric Review

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ABSTRACT

This paper provides a comprehensive review of global research on financial inclusion and sustainable banking, highlighting their growing importance in promoting sustainable development, financial resilience, and inclusive economic growth. To achieve this objective, the study analyses a dataset of publications retrieved from the Scopus database covering the period from 2000 to 2025 using bibliometric, content, and network analysis approaches. The analysis was conducted using VOSviewer, Biblioshiny, and Microsoft Excel to examine publication trends, influential authors, journals, institutions, countries, collaboration networks, and thematic structures within the field. The findings reveal that financial inclusion and sustainable banking have emerged as prominent research areas, particularly in response to global sustainability initiatives, digital financial transformation, and the increasing emphasis on responsible banking practices. The study identifies the major thematic clusters underpinning the literature, including financial inclusion and economic development, sustainable finance and green banking, Islamic banking and social finance, ESG and banking sustainability, and financial stability and inclusive growth. Furthermore, the review highlights emerging research trends and underexplored areas that warrant further investigation. By integrating bibliometric, content, and network analyses, this study offers a comprehensive understanding of the intellectual structure of financial inclusion and sustainable banking research while providing valuable directions for future academic inquiry and policy development.

Keywords: Financial Inclusion; Sustainable Banking; Sustainable Finance; Green Banking; Financial Institutions; Bibliometric Analysis; Sustainable Development; Inclusive Growth JEL Classifications:

INTRODUCTION

In recent decades, financial inclusion and sustainable banking have emerged as critical pillars of sustainable economic development. Financial inclusion refers to the provision of affordable and accessible financial services to individuals and businesses, particularly underserved and vulnerable populations (Naili, Jabbouri & Helmi, 2023). At the same time, sustainable banking signifies the integration of environmental, social and governance (ESG) considerations into banking practices and decision-making processes (Boafo et al., 2025). Together, these concepts help promote inclusive economic growth, reduce poverty, achieve financial stability and attain the Sustainable Development Goals (SDGs).

There is a growing awareness regarding the role of the banking sector in promoting sustainable development, and this has attracted considerable academic interest. Researchers have studied various aspects of financial inclusion and sustainable banking such as digital finance, green banking, social banking, Islamic banking, financial literacy, sustainable finance and ESG practices (Hassan et al., 2025; Mamun & Laszlo, 2025; Rastam & Sherin, 2023). However, despite the increasing volume of literature, the field remains fragmented and it can be difficult to identify influential contributors, dominant themes and emerging research directions.

Bibliometric analysis provides a systematic and quantitative approach for examining the intellectual structure of a research field. By analyzing publication trends, citation patterns, collaboration networks, and thematic clusters,

bibliometric studies offer valuable insights into the development and future trajectory of a discipline. Therefore, this study aims to map the existing literature on financial inclusion and sustainable banking through bibliometric, content, and network analyses.

The study addresses the following research questions:

RQ1: What are the publication trends and growth patterns of financial inclusion and sustainable banking research?

RQ2: Who are the most influential authors, journals, institutions, and countries in financial inclusion and sustainable banking research?

RQ3: What are the dominant thematic clusters in financial inclusion and sustainable banking literature?

RQ4: What are the major collaboration patterns among researchers, institutions, and countries in this field?

RQ5: What emerging themes and future research directions can be identified in financial inclusion and sustainable banking research?

The remainder of this paper is organised as follows. The first section emphasizes on a literature review on financial inclusion, sustainable banking, financial inclusion and sustainable development, followed by the methodologies employed in the investigation. The analysis and findings are presented next, with the discussion and conclusion presented thereafter.

LITERATURE REVIEW

Financial Inclusion

Financial inclusion is the availability, accessibility and effective use of formal financial services by all segments of society especially the poor and low-income individuals and businesses that are normally excluded from the formal financial system (Song et al., 2025). This includes access to useful and affordable financial products and services such as transactions, payments, savings, credit and insurance, provided in a responsible and sustainable way. Financial inclusion is a key objective for governments, regulators and international development organisations, as it promotes equal participation in economic activities and lowers barriers to financial services (Farah et al., 2026; Care et al., 2025). Therefore, it is widely accepted as a key driver of inclusive and sustainable economic development.

Financial inclusion matters not only because it increases access to financial services. A well-functioning inclusive financial system enables households to manage financial risks, build savings, invest in education and health care, and improve their overall standard of living (Vo et al., 2026; Khudoykulov et al., 2026). For businesses, especially micro, small and medium-sized enterprises (MSMEs), increased financial inclusion means increased access to capital, increased entrepreneurship, increased business expansion and increased innovation (Okello Candiya Bongomin et al., 2025; Mohammed et al., 2025). Financial inclusion at the macroeconomic level promotes financial stability, economic resilience, job creation and sustainable economic growth. Therefore, it has become an important policy tool to reduce poverty and enhance socioeconomic development in many developing and emerging economies (Balliester, 2026). Previous studies have consistently demonstrated that expanding access to formal financial services improves household welfare, reduces income inequality, and promotes social inclusion by empowering vulnerable and underserved communities.

In recent years the concept of financial inclusion has been significantly transformed against the background of rapid technological development and global sustainability initiatives. Financial services have undergone a dramatic change with the rise of financial technology (FinTech), digital banking, mobile payment systems, artificial intelligence and blockchain technology, which have increased access to the previously unbanked population (Del Sarto & Ozili, 2025; Ristanović et al., 2025). Simultaneously, financial inclusion has been increasingly integrated into broader sustainability agendas, especially the United Nations Sustainable Development Goals (SDGs), where it is recognized as a key enabler of poverty alleviation, gender equality,

decent work and inclusive economic growth (Rubio & León, 2025; Guruprasad et al., 2025). As a result, research on financial inclusion has expanded beyond traditional banking and microfinance to encompass sustainable finance, digital financial ecosystems, ESG practices, financial resilience, and responsible banking, reflecting its growing importance within the contemporary financial sector.

Sustainable Banking

Sustainable banking is the process of integrating environmental, social and governance (ESG) considerations into banks' strategies, operations and financial decision-making, while ensuring long-term financial performance and institutional stability (Valavan, et al., 2024; Mateev et al., 2026)). Traditional banking is focused on making money for shareholders, but sustainable banking takes a broader view, balancing economic goals with social responsibility and commitment to the environment (Jumat, 2025).

The concept covers various banking operations such as green banking, sustainable finance, responsible lending, ethical investment, climate risk management, and ESG-based banking activities (Hack, 2026; Valentinon, 2025; Aracil et al., 2026). These practices are used by financial institutions to create long-term value for stakeholders, and to help achieve sustainable economic development and environmental protection.

The growing importance of sustainable banking is driven by increasing awareness of climate change, environmental degradation, social inequality and changing stakeholder expectations. International efforts such as the United Nations Sustainable Development Goals (SDGs), the Paris Climate Agreement and the United Nations Principles for Responsible Banking (PRB) have encouraged sustainability in the business models and risk management frameworks of financial institutions.

Therefore, banks are lending more for renewable energy projects, backing green investments, encouraging socially inclusive financial products and improving governance practices to increase transparency and accountability. Existing studies show that sustainable banking improves the corporate reputation and stakeholder trust and helps to improve the long-term financial resilience by reducing environmental, social and governance risks (Chakraborty et al., 2026; Roy & Gupta, 2025; Azad et al., 2026).

Recent developments in financial technology (FinTech), digital banking, artificial intelligence, and big data analytics have further accelerated the transition towards sustainable banking (Paul et al., 2026). Digital financial services have expanded financial accessibility, reduced operational costs, and enabled banks to deliver more inclusive and environmentally sustainable financial products (Bokenchin et al., 2025). At the same time, sustainable banking has become increasingly intertwined with financial inclusion, as financial institutions seek to provide affordable and accessible financial services while promoting responsible financing and sustainable economic growth.

This convergence has generated growing academic interest in examining how digital transformation, ESG integration, sustainable finance, and financial inclusion collectively contribute to building resilient and inclusive financial systems (Del Sarto & Ozili, 2025; Song et al., 2025). As a result, sustainable banking has evolved into a multidisciplinary research field that integrates perspectives from finance, sustainability, technology, governance, and public policy, making it one of the most dynamic areas of contemporary banking research.

Financial Inclusion and Sustainable Development

Financial inclusion and sustainable banking have increasingly been recognised as complementary pillars for achieving sustainable development. While financial inclusion focuses on expanding equitable access to affordable and appropriate financial services, sustainable banking emphasises the responsible allocation of financial resources by incorporating environmental, social, social, and governance (ESG) considerations into banking operations and investment decisions.

Together, these concepts contribute to the development of a more inclusive, resilient, and sustainable financial system that supports long-term economic prosperity while addressing social inequalities and environmental challenges (Aracil et al., 2021; Mateev et al., 2026). Consequently, policymakers, financial institutions, and

international organisations have increasingly viewed financial inclusion and sustainable banking as mutually reinforcing strategies for achieving sustainable development objectives.

The connection between financial inclusion and sustainable development has been recognized for a long time in academic literature and international policy agendas. Financial inclusion means that individuals, households and businesses, especially those that are underserved and vulnerable, have access to savings, credit, insurance and payment services to take part in formal economic activities.

This access creates opportunities for income generation, reduces poverty, builds financial resilience, and encourages social mobility. In return sustainable banking ensures that financial resources are directed to productive investments that create long-term economic value and support environmental protection and social welfare. These complementary roles support directly the achievement of multiple United Nations Sustainable Development Goals (SDGs), in particular, SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 10 (Reduced Inequalities), and SDG

Recent technology development has additionally advanced the connection between financial inclusion and sustainable banking. The exponential development of financial technology (FinTech), digital banking, mobile payment systems, artificial intelligence, blockchain technology, and big data analysis has transformed the delivery of financial services, allowing financial institutions to reach previously unbanked populations more efficiently and at lower costs. Digital financial innovations improve financial inclusion, transparency, operational efficiency, and responsible financial decision-making.

Thus, digital finance has emerged as a key enabler of sustainable banking by enabling green financing, improving ESG implementation, boosting financial literacy, and expanding financial inclusion in both developed and developing economies (Paul et al., 2026; Bokenchin et al., 2025). The integration of digital financial technologies with sustainable finance also offers substantial opportunities to bolster financial resilience and accelerate sustainable economic development, as emerging evidence suggests (Care et al., 2025).

The literature on financial inclusion and sustainable banking is still scattered across several disciplines such as banking, finance, sustainability, digital innovation, development economics and public policy. Most of the previous studies have focused on specific dimensions such as digital financial inclusion, green banking, ESG integration, sustainable finance, or FinTech adoption, and only a few studies have focused on understanding the overall intellectual development and thematic evolution of the field.

Therefore, a comprehensive bibliometric review is still required to systematically map the publication trends, influential contributors, collaboration networks, and emerging research themes. Such a review, by synthesising the existing body of knowledge, provides a clearer understanding of how financial inclusion and sustainable banking research has developed over the years, identifies existing knowledge gaps, and proposes future.

While there has been a considerable expansion in the literature on financial inclusion and sustainable banking, the existing studies are scattered across various disciplines and thematic areas. Therefore, little is known about the intellectual structure, research trends, collaboration patterns, and emerging themes of the field. The present study aims to fill this gap by offering a thorough bibliometric review of literature.

METHODS

Bibliometric Assessment

Bibliometric analysis is a systematic and rigorous quantitative research method widely used to evaluate and synthesise the development of scientific knowledge within a particular research domain. It enables researchers to examine the intellectual structure, knowledge evolution, and emerging trends of a discipline by analysing bibliographic information extracted from published literature (Donthu et al., 2021).

Through the application of statistical and network-based techniques, bibliometric analysis facilitates the identification of influential publications, leading authors, productive institutions, collaborative networks, and

dominant research themes, thereby providing a comprehensive understanding of the development and direction of a research field.

According to Linnenluecke et al. (2020), bibliometric assessment offers a scientific approach for analysing scholarly publications, including journal articles, books, and conference proceedings, using appropriate quantitative techniques. Among the various bibliometric methods, citation analysis plays a central role in evaluating scientific influence by examining citation relationships among publications. Citation networks enable researchers to identify seminal studies, influential scholars, and the dissemination of knowledge within a discipline, making citation analysis one of the most widely adopted approaches in bibliometric research (Ellegaard & Wallin, 2015).

In addition to citation analysis, bibliometric techniques such as co-authorship analysis, keyword co-occurrence analysis, thematic mapping, and collaboration network analysis provide valuable insights into the conceptual, intellectual, and social structures of a research field. These analytical approaches allow researchers to identify dominant research themes, emerging topics, international collaboration patterns, and the evolution of scholarly interests over time.

Accordingly, this study employed bibliometric, network, and content analyses to systematically map the intellectual structure of financial inclusion and sustainable banking research. Using publication data retrieved from the Scopus database and analysed through Biblioshiny, VOSviewer, and Microsoft Excel, the study examined publication trends, influential authors, journals, institutions, countries, collaboration networks, thematic structures, and emerging research themes. The combined analytical approach provides a comprehensive overview of the evolution of financial inclusion and sustainable banking research while identifying existing knowledge gaps and potential directions for future research.

Procedure Analysis

Data collection was conducted using the Scopus database, one of the most comprehensive repositories of peer-reviewed academic literature. The search focused on publications related to financial inclusion and sustainable banking. Specifically, articles whose titles, abstracts, and keywords contained terms such as “financial inclusion”, “inclusive finance”, “financial access”, “financial accessibility”, “sustainable banking”, “green banking”, “social banking”, “sustainable finance”, “responsible banking”, “ethical banking”, “ESG banking”, “sustainable financial services”, and “inclusive banking” were retrieved.

To ensure relevance to the banking sector, these terms were combined with banking-related keywords including “bank*”, “financial institution*”, “commercial bank*”, and “Islamic bank*”. The retrieved data were limited to journal articles and review papers published in English between 2010 and 2025. Conference papers, book chapters, editorials, notes, and non-English publications were excluded to ensure consistency and quality of the dataset. The final dataset was subsequently analysed using Biblioshiny and VOS viewer to examine publication trends, influential contributors, collaboration networks, thematic structures, and emerging research directions within the field of financial inclusion and sustainable banking. The data search process is shown in Figure 1.

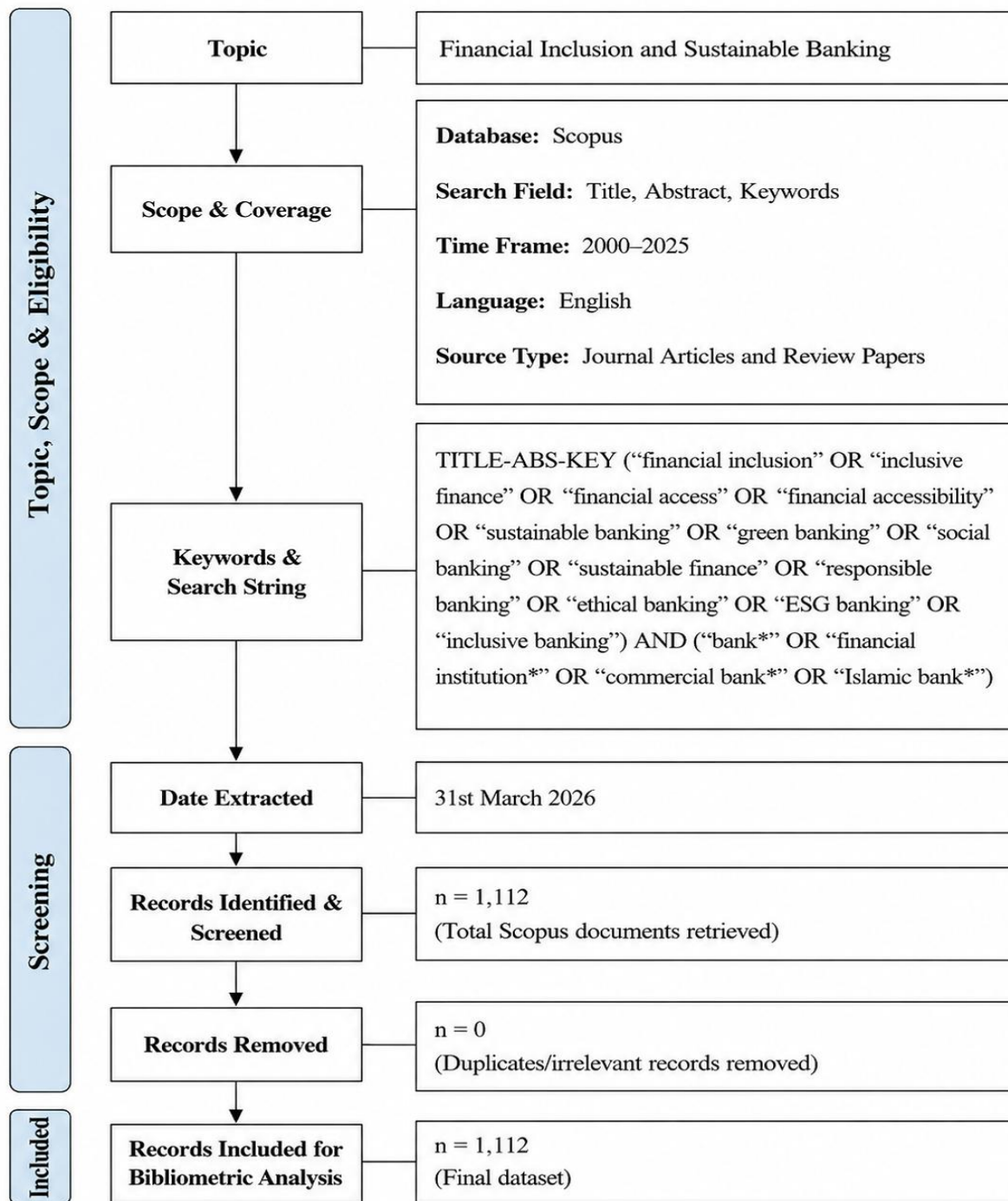


Figure 1: Diagram of the search process

Source: Modified from PRISMA (Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7)

Data analysis

This study retrieved 1,112 documents from the Scopus database related to financial inclusion and sustainable banking. The extracted records included authors’ names, article titles, abstracts, keywords, publication years, affiliations, countries, citation information, and other bibliographic metadata. The dataset was analysed using descriptive analysis, bibliometric analysis, network analysis, and content analysis to provide a comprehensive overview of the intellectual structure of the field. Descriptive analysis was employed to examine publication trends and productivity indicators, including annual scientific production, the most influential journals, the most productive authors, leading institutions, and the most active countries contributing to the literature. Citation analysis was conducted to identify highly cited publications and influential contributors within the field.

Bibliometric indicators were generated using Biblioshiny, which facilitated the examination of publication performance and scientific impact.

Network and bibliometric analyses were performed using VOSviewer to visualise and analyse relationships among authors, institutions, countries, and research themes. Specifically, the software was used to conduct co-authorship analysis, country collaboration analysis, citation analysis, co-citation analysis, bibliographic coupling, and keyword co-occurrence analysis. These analyses enabled the identification of collaboration networks, influential knowledge structures, and thematic relationships within the literature.

Furthermore, content analysis was undertaken to interpret the thematic clusters generated from the bibliometric mapping. The analysis focused on identifying dominant research themes, emerging topics, and potential research gaps in the field of financial inclusion and sustainable banking. The findings provide a comprehensive understanding of the evolution and current state of research while offering directions for future scholarly inquiry. Figure 2 presents the research framework and analytical structure adopted in this study.

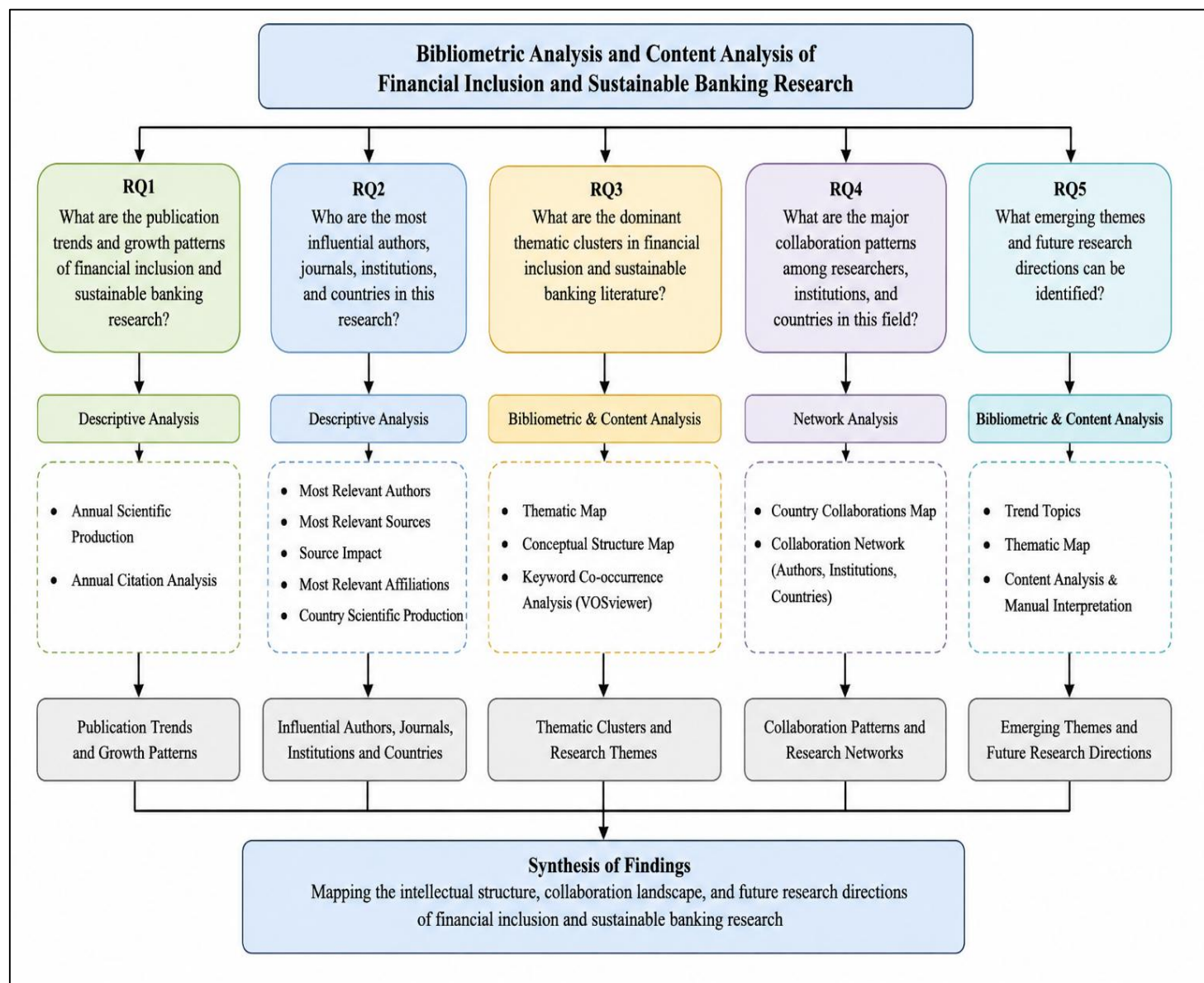


Figure 2 : Research Framework and Analytical Structure

RESULTS

Publication Trends and Growth Patterns

This section examines the temporal development of research on financial inclusion and sustainable banking by analysing both the annual scientific production and annual citation trends to address the first research question. Together, these indicators provide insights into the evolution of scholarly interest and the scientific impact of publications within the field. Figure 3 illustrates the annual scientific production of publications on financial inclusion and sustainable banking from 2000 to 2025.

Overall, the findings reveal a substantial increase in research output over the study period, reflecting the growing recognition of financial inclusion and sustainable banking as important components of sustainable economic development. During the early years, publication activity remained relatively limited, indicating that the research area was still emerging and had yet to receive widespread academic attention. However, beginning around 2018, the number of publications increased steadily before experiencing a remarkable surge between 2020 and 2025.

The highest annual publication output was recorded in 2025, demonstrating that financial inclusion and sustainable banking have become one of the most rapidly expanding areas of research within banking, finance, and sustainability studies. This rapid growth can be attributed to increasing global concerns regarding financial inclusion, sustainable finance, digital banking, environmental sustainability, and the implementation of Environmental, Social and Governance (ESG) principles within financial institutions. Moreover, the advancement of financial technologies, such as FinTech, mobile banking, artificial intelligence, and digital payment systems, has further accelerated academic interest by creating new opportunities to improve financial accessibility while promoting sustainable financial development.

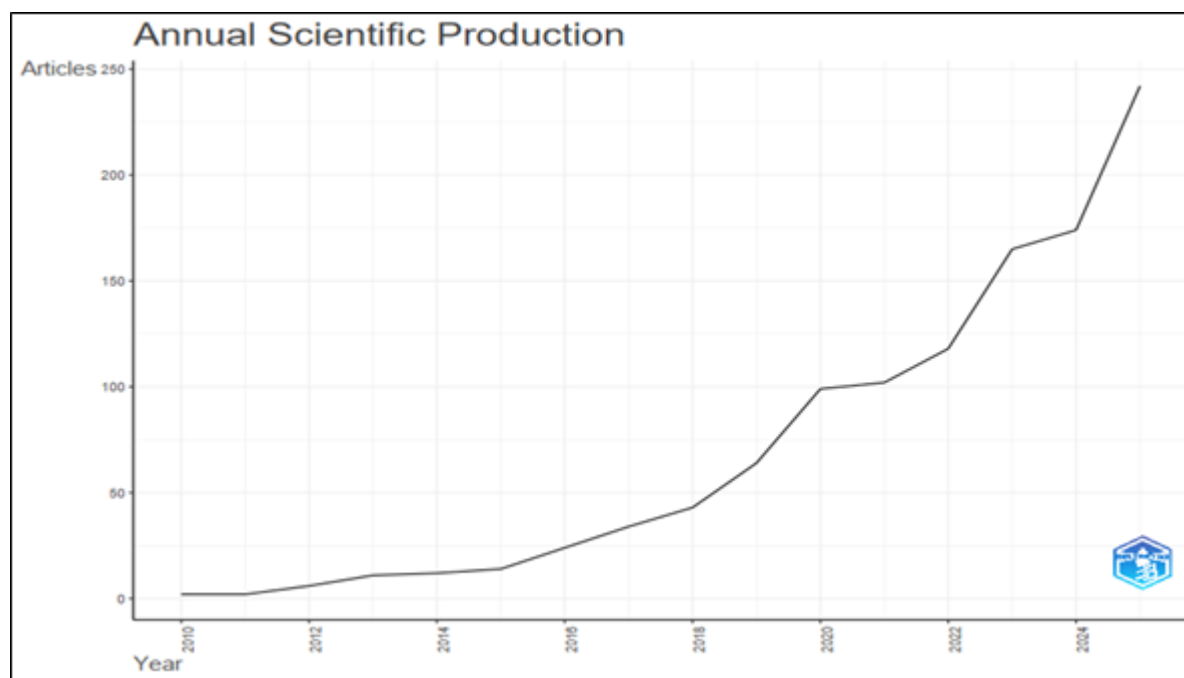


Figure 3: Annual Scientific Production from 2010 to 2025

The increasing publication trend also reflects the growing involvement of governments, international organisations, and financial regulators in promoting inclusive and sustainable financial systems. Global policy initiatives, including the United Nations Sustainable Development Goals (SDGs), the Paris Agreement, and the Principles for Responsible Banking, have encouraged researchers to investigate how financial institutions can simultaneously promote economic growth, social inclusion, and environmental sustainability. Consequently, recent publications have expanded beyond traditional banking studies to encompass interdisciplinary topics such as digital financial inclusion, green finance, ESG integration, sustainable banking, Islamic finance, and financial technology, thereby broadening the scope and diversity of research within this field.

Figure 4 presents the annual citation trend, which reflects the scientific influence and scholarly impact of publications over time. The results indicate that earlier publications generally received higher citation averages because they have had a longer period to accumulate citations. The highest citation impact was observed in 2018, recording an average of 81.30 citations per article and 9.03 average citations per year, suggesting that several highly influential studies published during this period significantly shaped subsequent research. Similarly, publications produced in 2021 also demonstrated considerable academic impact, with an average of 48.38 citations per article and 8.06 average citations per year. These findings indicate that although publication output continued to increase in later years, several earlier studies remain the intellectual foundation upon which contemporary research has developed.

Year	No. of Publications (N)	Mean Citations per Article	Mean Citations per Year
2010	2	9.50	0.56
2011	2	25.00	1.56
2012	6	36.17	2.41
2013	11	56.64	4.05
2014	12	56.17	4.32
2015	14	36.57	3.05
2016	24	40.00	3.64
2017	34	42.85	4.28
2018	43	81.30	9.03
2019	64	34.08	4.26
2020	99	39.00	5.57
2021	102	48.38	8.06
2022	118	23.97	4.79
2023	165	16.48	4.12
2024	174	8.09	2.70
2025	242	2.98	1.49

Figure 4: Annual Citation Trend,2010-2025

In contrast, publications from 2024 and 2025 recorded comparatively lower citation averages. This finding should not be interpreted as reflecting lower research quality, but rather the well-established citation time-lag effect commonly observed in bibliometric studies. Newly published articles require sufficient time to be disseminated, read, and cited by subsequent research before their scholarly influence can be fully realised. Therefore, the relatively lower citation averages for recent publications primarily reflect the limited citation window rather than reduced academic significance.

Taken together, Figures 3 and 4 demonstrate two complementary patterns in the development of financial inclusion and sustainable banking research. While the annual scientific production indicates a rapidly expanding and increasingly mature research field, the citation analysis highlights the enduring influence of earlier seminal publications that continue to shape current scholarly discussions. The combination of increasing publication output and sustained citation impact suggests that financial inclusion and sustainable banking have evolved into a well-established research domain with growing theoretical, practical, and policy relevance. These findings further imply that the field is likely to continue expanding as financial institutions increasingly integrate digital innovation, ESG principles, and sustainable finance into their business models.

Influential Authors, Journals, Institutions, and Countries

This section answered second research question. The findings indicate that the literature on financial inclusion and sustainable banking is shaped by a relatively small group of highly productive scholars who have played a

significant role in advancing knowledge within the field. As presented in Figure 5, Ozili P.K. emerged as the most prolific author with 19 publications, followed by Munene J.C. (9 publications), Madaleno M. (8 publications), Bongomin G.O.C. (7 publications), and Ntayi J.M. (7 publications).

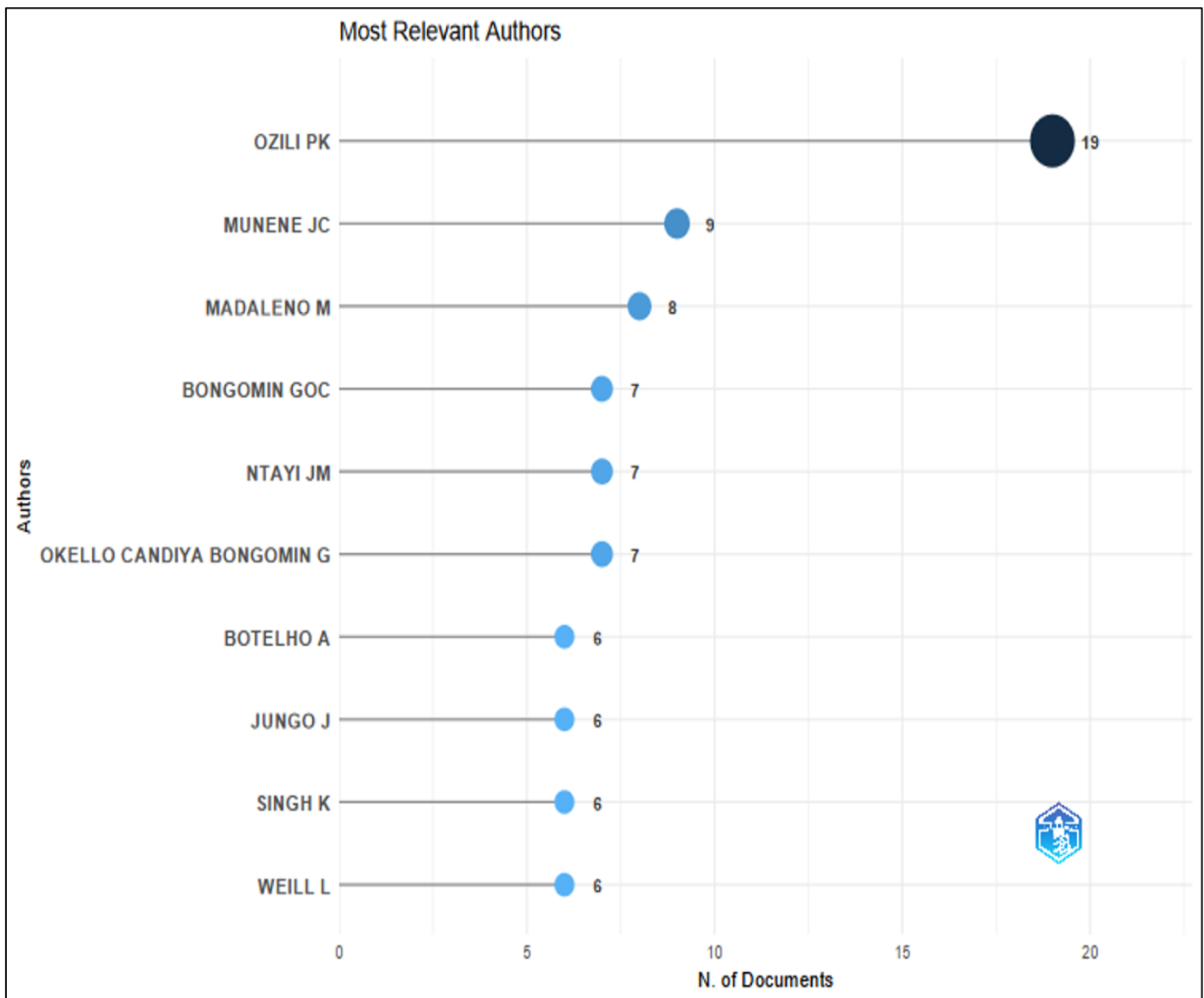


Figure 5: Most Relevant Authors

The dominance of these authors suggests the existence of a concentrated intellectual core within the field. Their contributions have largely focused on issues related to financial inclusion, banking development, financial stability, and sustainable finance, thereby establishing key theoretical and empirical foundations for subsequent research. The concentration of publications among a limited number of scholars is consistent with the development of emerging research domains, where pioneering researchers often drive agenda-setting and knowledge creation.

The analysis of publication sources further reveals the interdisciplinary nature of the field. Figure 6 shows that the International Journal of Social Economics is the most productive outlet, followed by the Journal of Risk and Financial Management, Cogent Economics and Finance, Applied Economics, and Finance Research Letters. The prominence of these journals indicates that research on financial inclusion and sustainable banking extends beyond traditional banking studies and incorporates perspectives from economics, finance, development studies, and sustainability research.

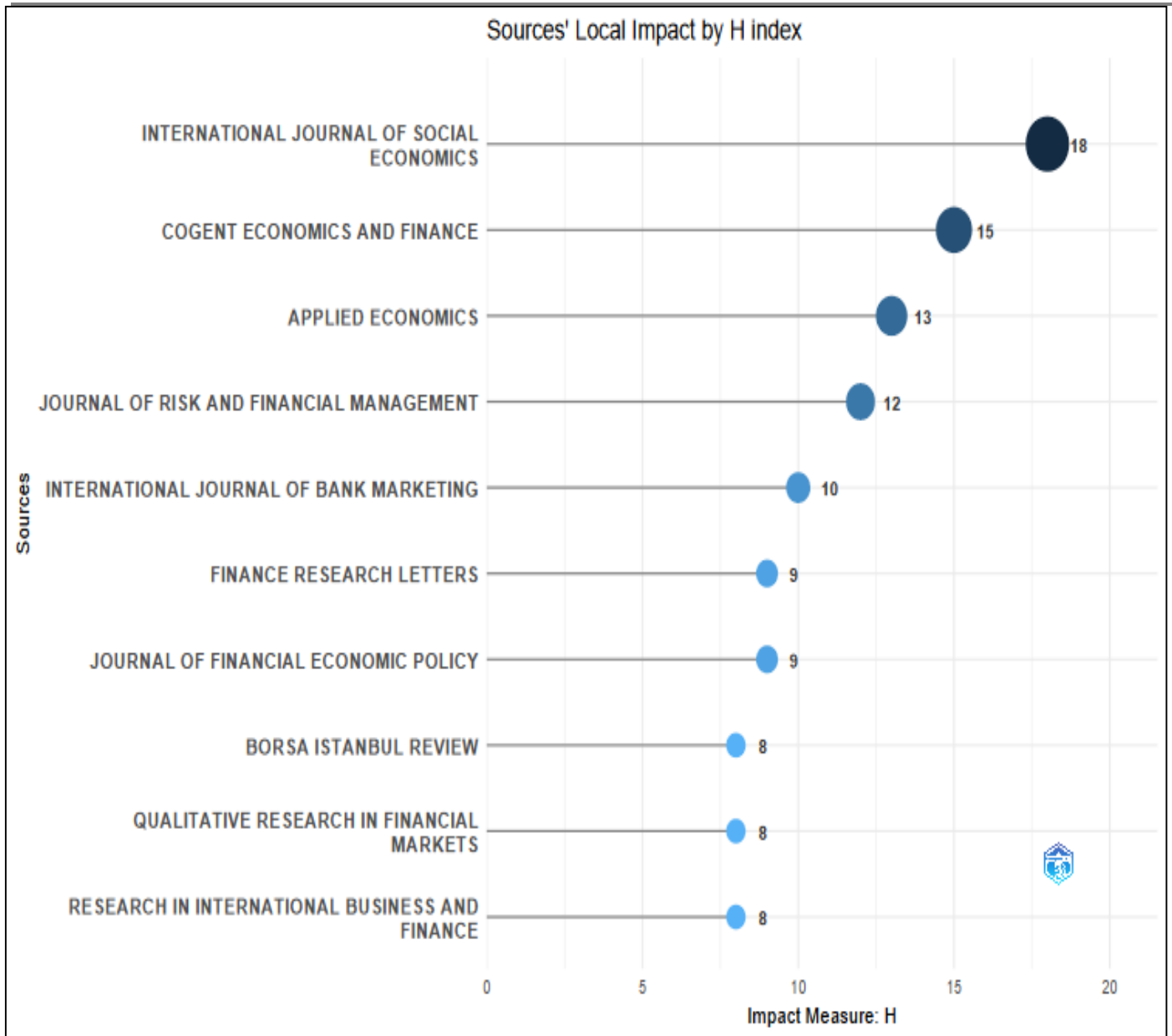


Figure 6: Most Relevant Sources

At the country level, research productivity is heavily concentrated in a number of emerging and developed economies. As illustrated in Figure 7, India leads the field with 388 publications, followed by the United States, China, the United Kingdom, and Indonesia. India's strong research output may be attributed to its extensive national financial inclusion initiatives, including the Pradhan Mantri Jan Dhan Yojana (PMJDY) programme, which has attracted considerable academic attention. Similarly, the contributions of China, Malaysia, and Indonesia reflect growing interest in sustainable finance, digital banking, and inclusive financial systems within rapidly developing economies.

Top 10 countries by scientific production

Number of publications in financial inclusion and sustainable banking research based on the Biblioshiny analysis (n = 1,112 documents).

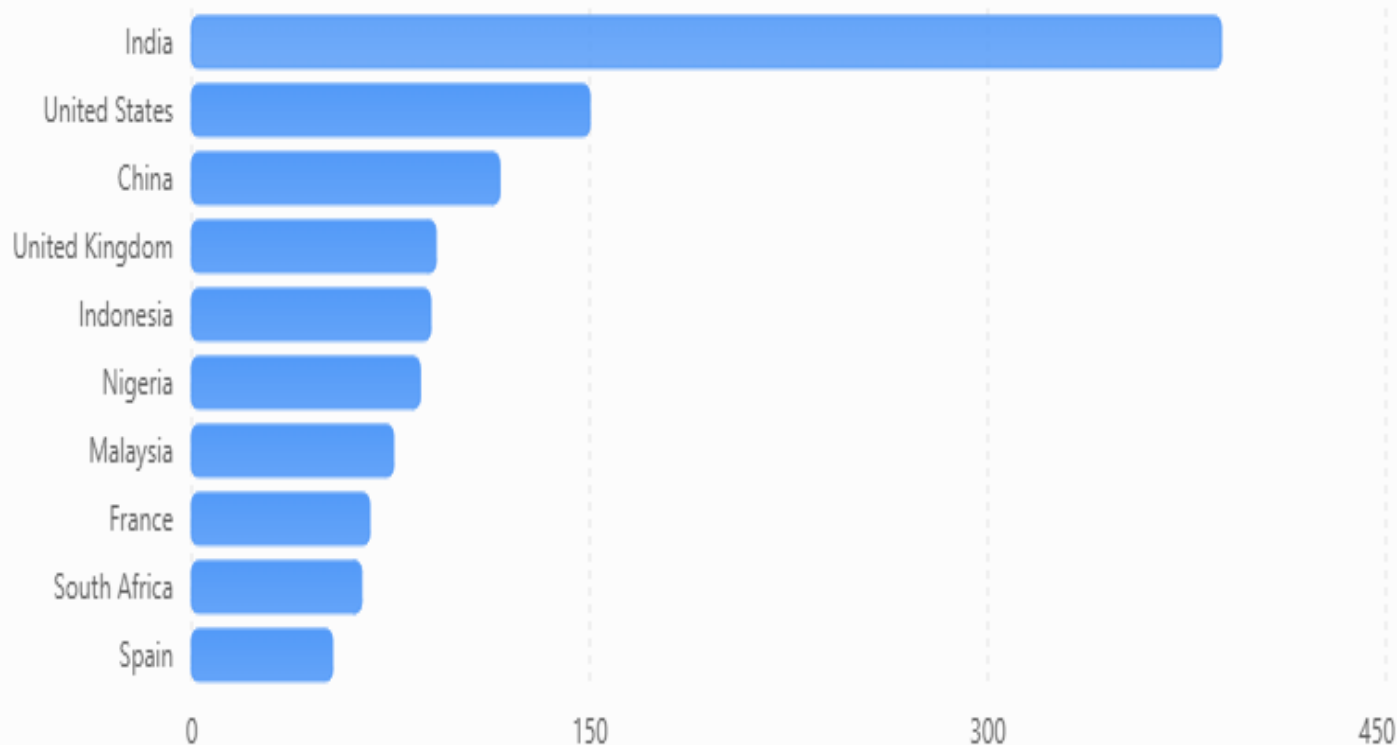


Figure 7: Top 10 countries by scientific production

The ten countries with the highest scientific contributions to financial inclusion and sustainable banking research were identified based on publication frequency. India emerged as the most productive country, contributing 388 publications, followed by the United States (150 publications), China (116 publications), the United Kingdom (92 publications), Indonesia (90 publications), Nigeria (86 publications), Malaysia (76 publications), France (67 publications), South Africa (64 publications), and Spain (53 publications). These findings indicate that research on financial inclusion and sustainable banking has attracted considerable scholarly attention across both developed and developing economies. In particular, the dominance of India and several emerging economies reflect the growing importance of financial inclusion as a policy instrument for promoting sustainable economic development, reducing financial exclusion, and advancing digital financial services. Based on the frequency publication extracted from the Biblioshiny analysis, the global distribution of scientific production was visualised using a world map, as presented in Figure 8.



On the same hand, figure 8 presents the geographical distribution of scientific production in financial inclusion and sustainable banking research. Unlike Figure 7, which ranks in the top 10 most productive countries based on publication frequency, Figure 8 provides a broader visual representation of the global spread of research activity across countries. The darker areas on the map indicate countries with higher levels of scientific production, while lighter areas represent countries with relatively lower research output. The geographical pattern demonstrates that research on financial inclusion and sustainable banking extends across both developed and developing economies, although the intensity of research activity varies considerably across regions.

This geographical diversity provides an important foundation for comparative research, particularly studies examining how differences in institutional environments, financial infrastructure, and socioeconomic conditions shape the development of inclusive and sustainable financial systems

Dominant Thematic Cluster

To address RQ3, a thematic analysis was conducted using the Biblioshiny software to identify the dominant research themes in financial inclusion and sustainable banking. Thematic analysis provides an overview of the conceptual structure of a research field by grouping frequently co-occurring keywords into clusters that represent major areas of scholarly interest. Unlike publication or citation analyses, thematic mapping allows researchers to identify the intellectual foundations of a discipline, distinguish between mature and emerging themes, and evaluate how different research topics are interconnected.

Figure 9 presents the thematic map generated from the Biblioshiny analysis. The thematic map classifies research themes according to two dimensions: centrality and density. Centrality measures the degree of interaction between a theme and other research themes within the overall knowledge network, indicating its relative importance to the research field. Density, on the other hand, measures the internal cohesion and development of a theme, reflecting its level of maturity. Based on these two dimensions, the themes are categorised into four quadrants, namely Motor Themes, Basic Themes, Niche Themes, and Emerging or Declining Themes.

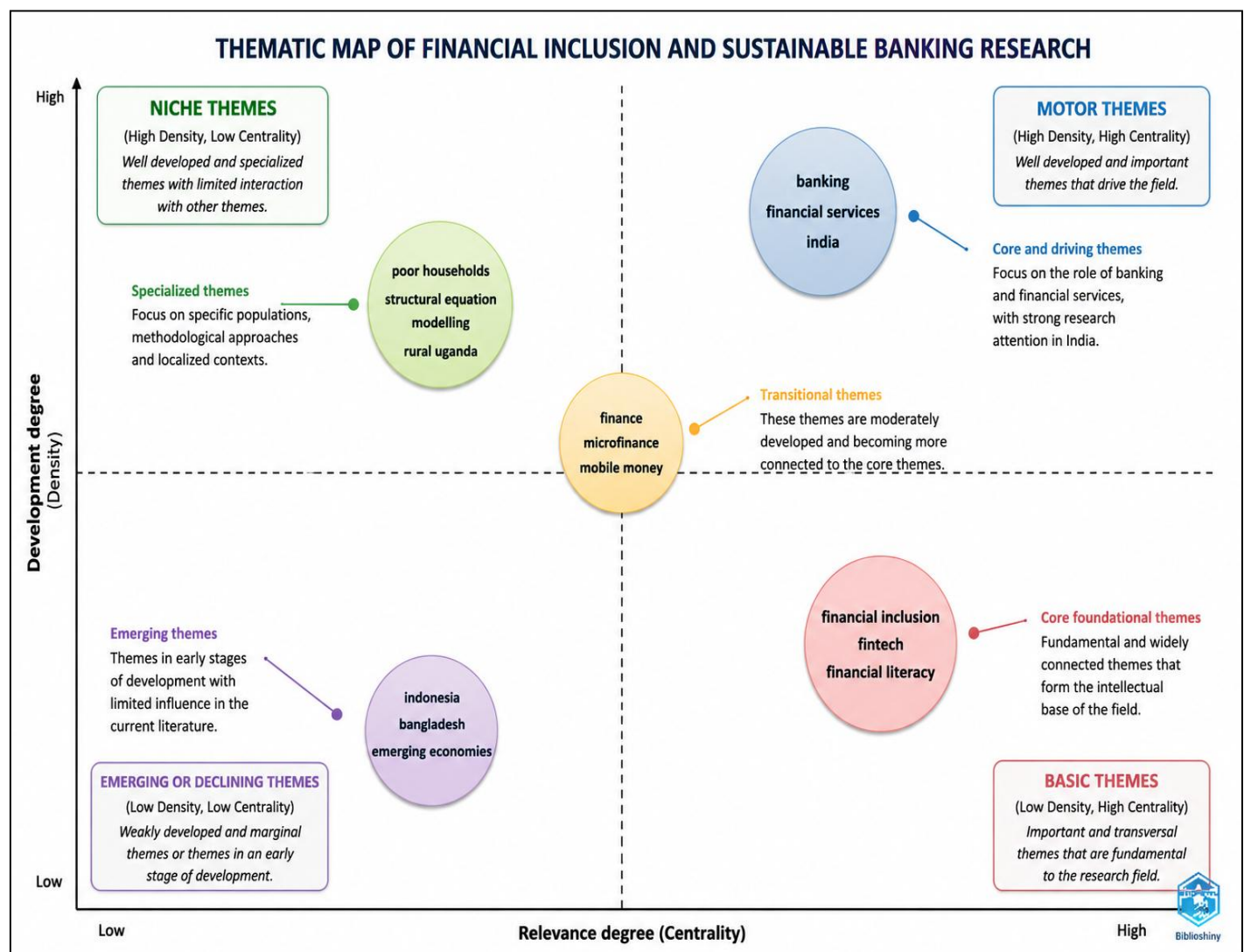


Figure 9. Thematic Map of Financial Inclusion and Sustainable Banking Research

The thematic map demonstrates that financial inclusion remains the principal research theme, occupying a central position within the knowledge structure. Closely associated themes include sustainable banking, sustainable finance, digital finance, financial technology (FinTech), financial development, and environmental, social and governance (ESG). These themes exhibit high centrality, indicating that they constitute the intellectual foundation of literature and are strongly connected with numerous other research topics. Their prominence reflects the increasing recognition of financial inclusion as a strategic mechanism for promoting sustainable economic development, responsible financial intermediation, and inclusive financial systems.

The analysis also reveals several specialised research domains. Sustainable finance, green banking, ESG, and climate-related finance represent mature areas that continue to receive considerable scholarly attention, while topics such as digital banking, financial technology, artificial intelligence, blockchain, and digital financial services illustrate the growing influence of technological innovation on financial inclusion and sustainable banking. Furthermore, Islamic banking and social finance emerge as important research streams, particularly within developing and Muslim-majority countries, where inclusive financial systems are increasingly linked to sustainable development objectives and ethical financial practices.

To further validate the thematic structure identified by Biblioshiny, a keyword co-occurrence network was generated using VOSviewer, as illustrated in Figure 10. The network demonstrates strong relationships among keywords such as financial inclusion, sustainable banking, FinTech, digital finance, green finance, ESG, financial development, and sustainability. The dense interconnections among these keywords indicate that recent studies increasingly examine these concepts simultaneously rather than independently, suggesting a growing convergence between financial inclusion, sustainability, and technological innovation.

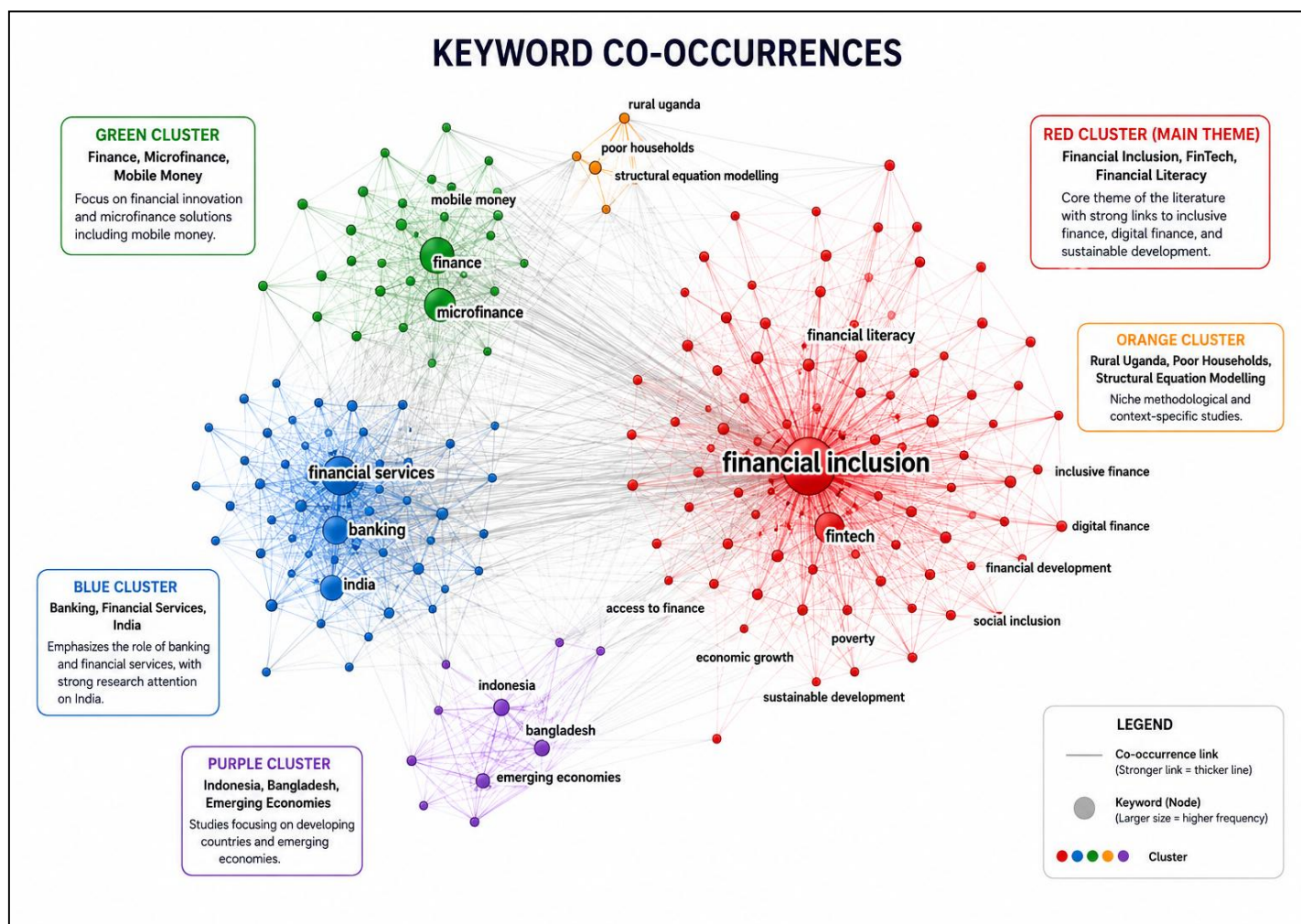


Figure 10: Keyword Co-occurrence Network

Overall, the thematic analysis identifies five dominant research clusters within the literature. The first cluster focuses on Financial Inclusion and Economic Development, examining access to financial services, poverty alleviation, and economic growth. The second cluster centres on Sustainable Finance and Green Banking, reflecting research on environmentally responsible financial practices and sustainable investment. The third cluster comprises Islamic Banking and Social Finance, highlighting the role of Islamic financial institutions in promoting inclusive and ethical finance. The fourth cluster addresses ESG and Banking Sustainability, emphasising responsible governance, corporate sustainability, and sustainable banking performance. Finally, the fifth cluster concerns Financial Stability and Inclusive Growth, investigating the contribution of inclusive financial systems to economic resilience and long-term sustainable development. Collectively, these thematic clusters demonstrate that the literature has evolved from traditional financial inclusion studies towards a

multidisciplinary research domain that integrates banking, sustainability, governance, digital innovation, and public policy.

Collaboration Networks

This section addresses the fourth research question by examining the collaboration patterns within financial inclusion and sustainable banking research. Collaboration analysis provides valuable insights into the extent of international scientific cooperation, knowledge exchange, and research partnerships among countries. As financial inclusion and sustainable banking have become global policy priorities, researchers increasingly collaborate across national boundaries to address common challenges related to sustainable finance, digital transformation, and inclusive economic development.

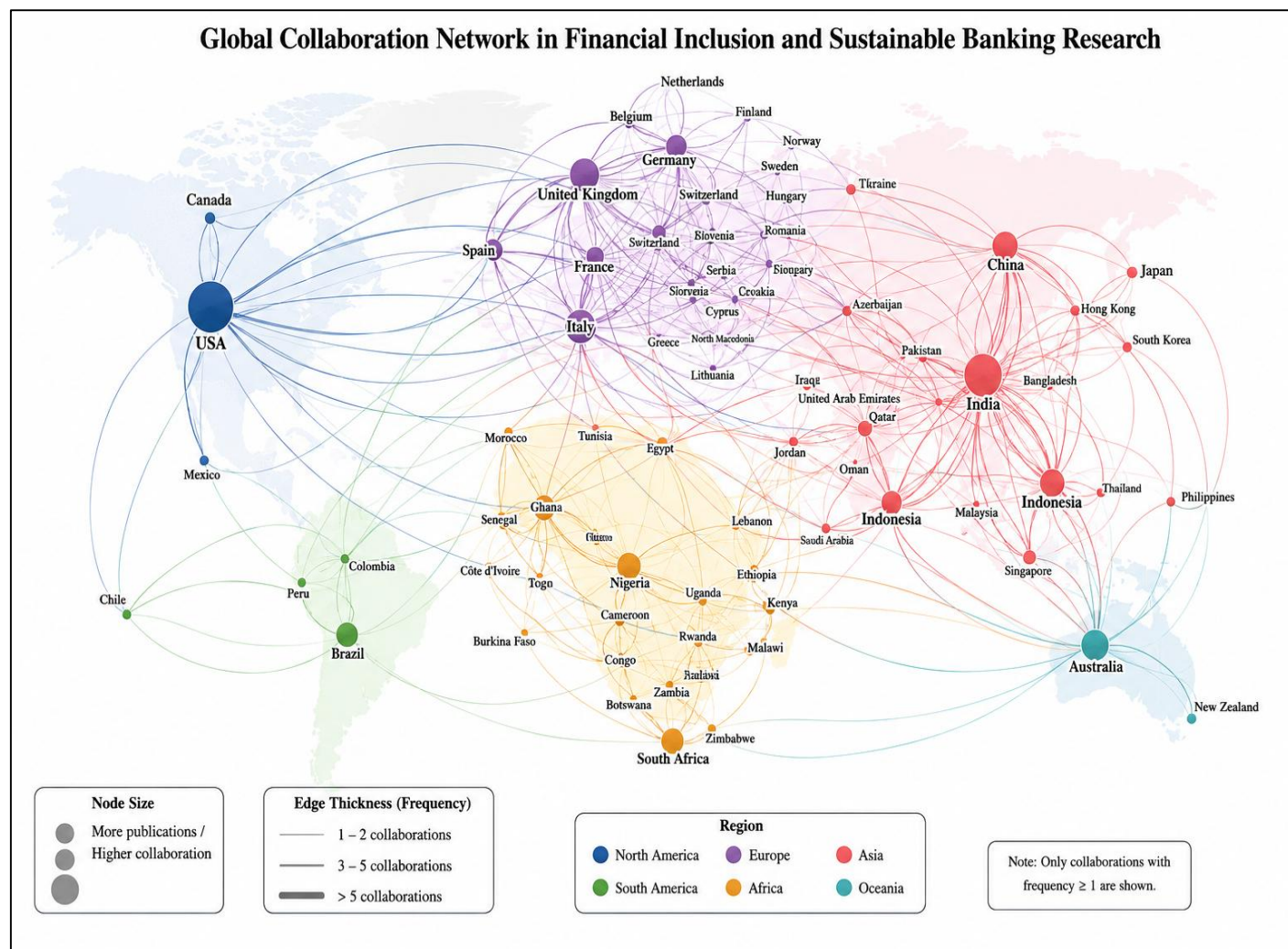
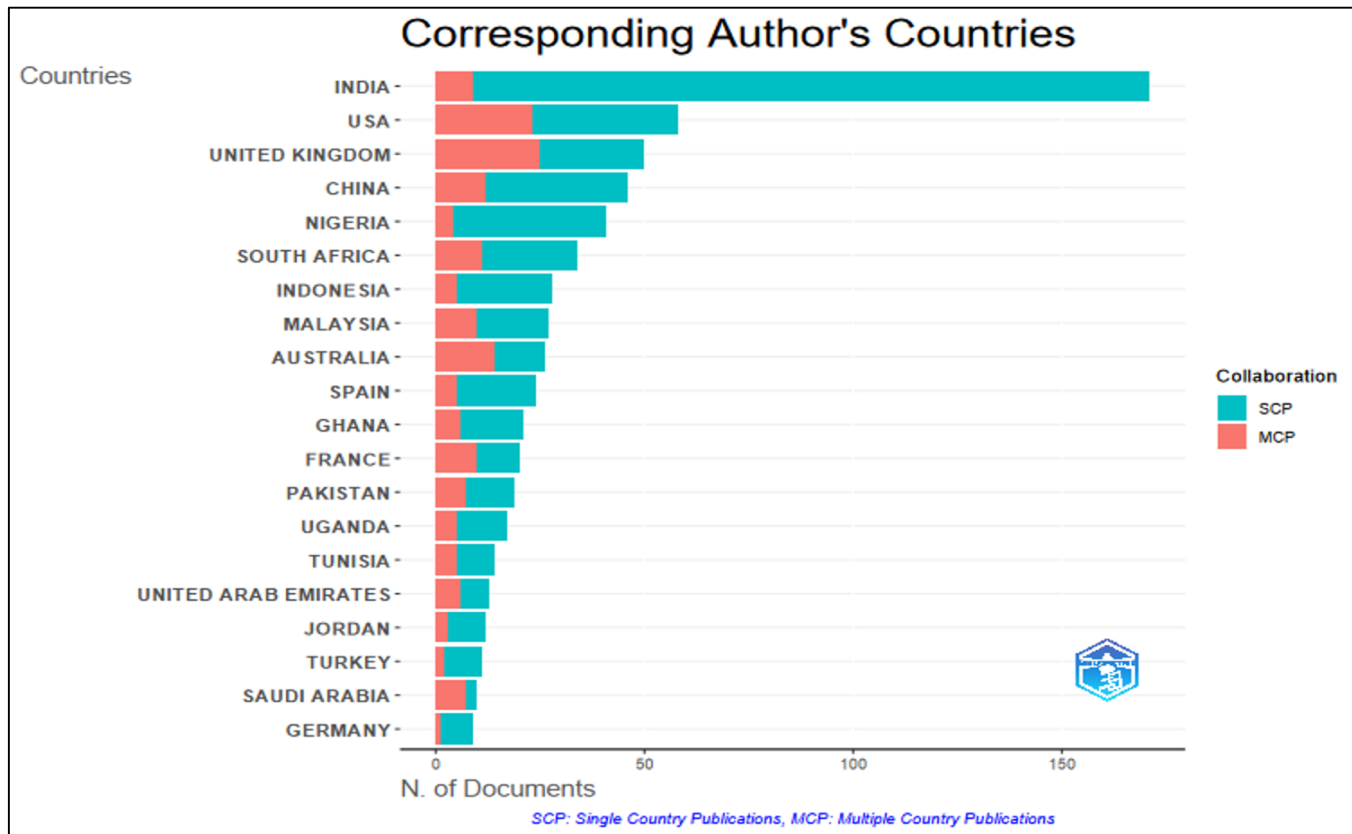


Figure 11: International collaboration patterns among countries

Figure 11 illustrates the international collaboration network among countries contributing to financial inclusion and sustainable banking research. The network reveals strong collaborative relationships between both developed and developing economies, demonstrating the increasingly global nature of the research field. Among the strongest bilateral collaborations are Indonesia–Malaysia (9 collaborative publications), United States–United Kingdom (7), Malaysia–Pakistan (7), China–Pakistan (6), China–United Kingdom (6), and Tunisia–Saudi Arabia (6). These findings indicate that collaboration is no longer confined within geographical regions but increasingly reflects international knowledge exchange aimed at addressing financial inclusion, sustainable finance, and digital banking challenges.

Table 1: Corresponding Author Countries and Publication Characteristics



To complement the collaboration network analysis, Table 1 presents the corresponding author countries together with their Single Country Publications (SCP) and Multiple Country Publications (MCP). SCP represents publications produced within a single country, whereas MCP refers to publications resulting from international collaboration. These indicators provide additional insights into the balance between domestic research productivity and global scientific cooperation.

The results indicate that India records the highest scientific productivity, reflecting its strong domestic research capacity in financial inclusion and sustainable banking. This finding is consistent with India's extensive implementation of financial inclusion initiatives, including digital payment systems, financial literacy programmes, and government-led financial reforms aimed at improving access to formal financial services. The large number of single-country publications suggests that India possesses a well-established domestic research ecosystem capable of generating substantial scholarly output independently.

In contrast, countries such as the United States and the United Kingdom demonstrate comparatively higher levels of international collaboration, as reflected by their Multiple Country Publications (MCP). This suggests that researchers from these countries are more actively engaged in cross-border research partnerships, facilitating the exchange of knowledge, methodologies, and policy experiences across different institutional and geographical contexts. Such collaborative activities contribute to enhancing research quality, increasing international visibility, and strengthening the global relevance of scientific findings.

The collaboration analysis also highlights the increasing integration of research communities across Asia, Europe, Africa, and North America. Rather than being concentrated within a particular geographical region, financial inclusion and sustainable banking research has evolved into a multidisciplinary and internationally connected field. This trend reflects the growing recognition that contemporary financial challenges including digital financial transformation, sustainable finance, financial resilience, and ESG implementation require collaborative solutions that transcend national boundaries.

Overall, the collaboration analysis demonstrates that financial inclusion and sustainable banking research has become increasingly international and knowledge driven. The active participation of both developed and developing economies indicates that the field is supported by extensive global partnerships that facilitate

scientific innovation and policy development. Strengthening future international collaborations, particularly between developed and emerging economies, is expected to promote broader knowledge exchange, encourage interdisciplinary research, and generate more comprehensive evidence to support the development of inclusive, resilient, and sustainable financial systems.

Emerging Themes and Future Research Directions

This section addresses the fifth research question by identifying the emerging research themes and future directions in financial inclusion and sustainable banking research. Unlike the previous sections, which focused on publication performance, thematic structures, and collaboration patterns, this section examines the temporal evolution of research topics to understand how scholarly interests have changed over time. The trend topic analysis and keyword frequency analysis provide complementary evidence regarding the evolution of literature and offer valuable insights into future research opportunities.

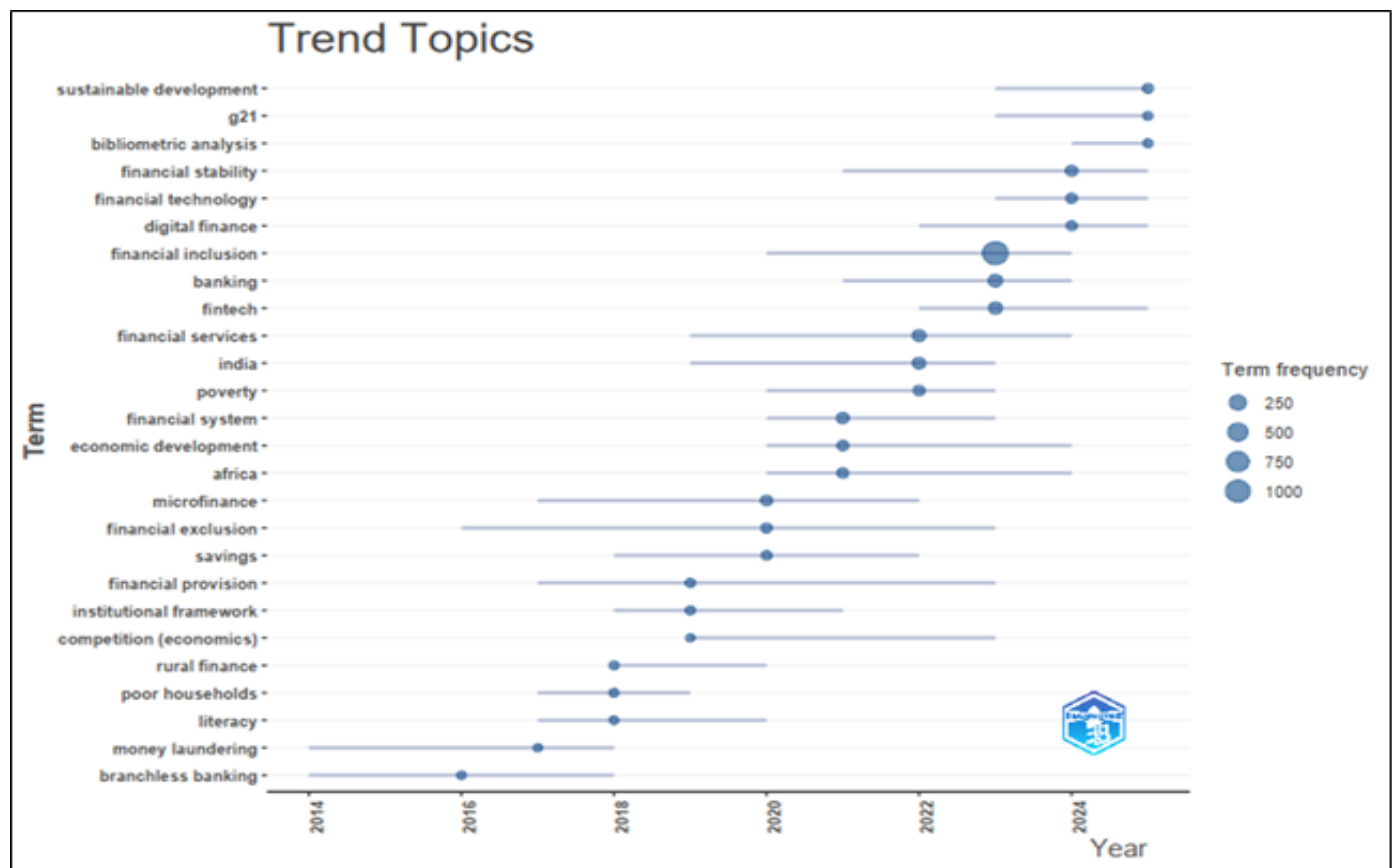


Figure 12. Trend Topics in Financial Inclusion and Sustainable Banking Research

Figure 12 presents the evolution of research topics within financial inclusion and sustainable banking throughout the study period. The analysis demonstrates a clear transition in scholarly interests, reflecting changes in financial systems, technological innovation, and global sustainability priorities. Earlier studies primarily concentrated on microfinance, financial exclusion, poor households, rural finance, and financial literacy, indicating that the initial emphasis of the literature was on improving financial accessibility and reducing poverty among underserved communities. These themes were closely associated with traditional development objectives and policies aimed at increasing access to formal financial services.

As the literature expanded, research gradually shifted towards broader institutional and economic perspectives. Topics such as financial systems, financial services, economic development, and financial institutions became increasingly prominent, reflecting growing recognition that financial inclusion should not be viewed solely as a social objective but also as an important contributor to national economic development and financial sector resilience. During this period, research increasingly incorporated institutional quality, financial infrastructure, and policy effectiveness as important determinants of financial inclusion.

The most recent phase of research demonstrates a substantial transformation towards technology-driven and sustainability-oriented themes. Keywords including financial inclusion, banking, FinTech, digital finance, financial technology, financial stability, and sustainable development have become increasingly dominant within the literature. This shift indicates that researchers are progressively examining financial inclusion through the lens of digital transformation, financial innovation, and sustainable banking. The growing prominence of these topics reflects the widespread adoption of digital financial services, mobile banking, artificial intelligence, blockchain technology, and other financial technologies that have fundamentally transformed the delivery of financial services worldwide.

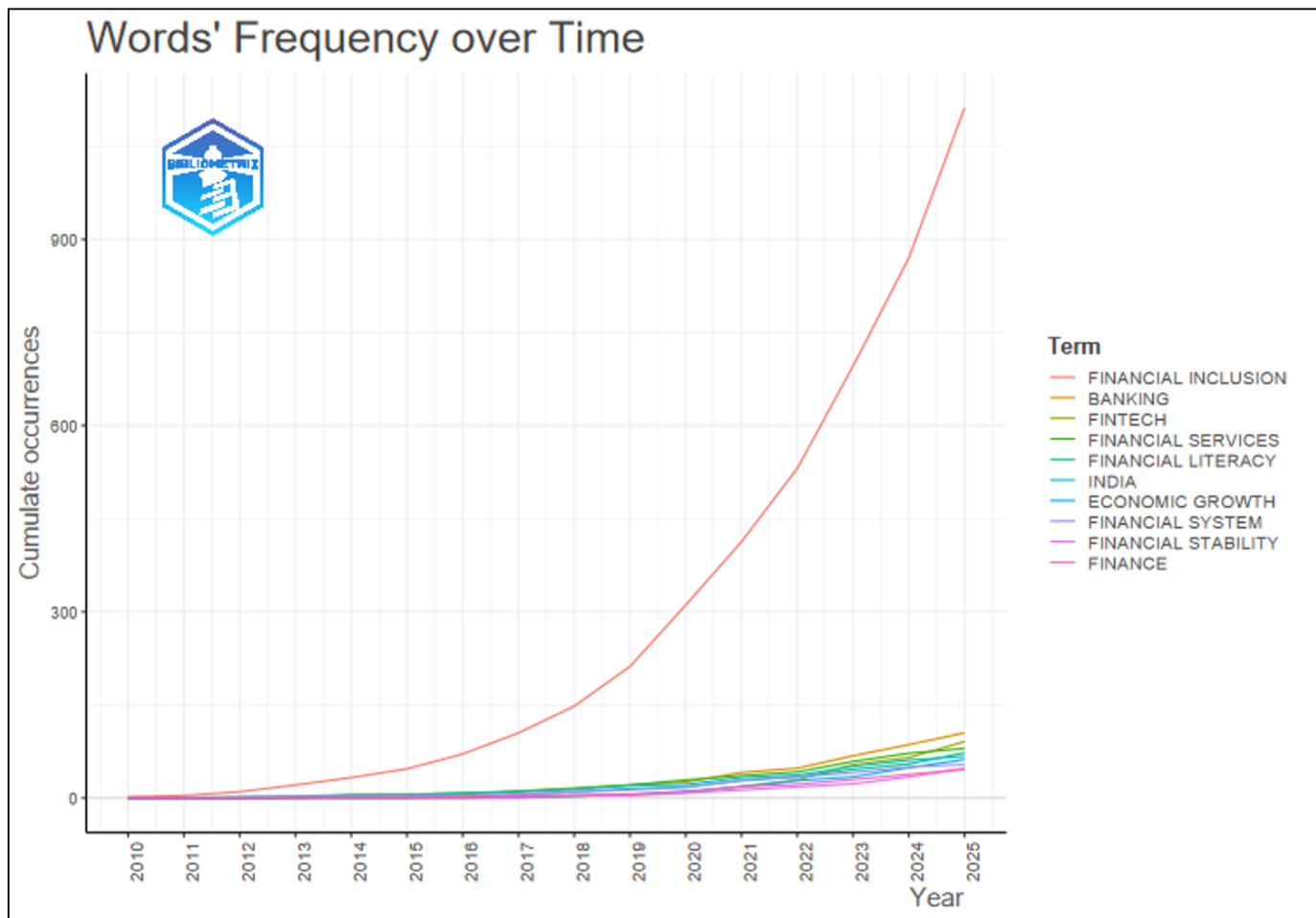


Figure 13: Word Frequency Over Time

To complement the trend topic analysis, Figure 13 illustrates the evolution of keyword frequencies over time. The figure provides additional evidence regarding the changing research priorities within financial inclusion and sustainable banking. The analysis demonstrates that financial inclusion has remained the dominant keyword throughout the study period, confirming its role as the intellectual foundation of the research field. Nevertheless, the increasing frequency of keywords such as FinTech, financial technology, digital finance, financial stability, and sustainable development indicates that the scope of the literature has expanded considerably beyond its original focus on financial accessibility.

The increasing prominence of technology-related keywords suggests that digital transformation has become one of the principal drivers of financial inclusion research. The rapid development of digital payment systems, mobile banking, artificial intelligence, big data analytics, blockchain technology, and digital financial platforms has created new opportunities for expanding financial access while simultaneously improving efficiency, transparency, and financial resilience. Consequently, recent studies increasingly investigate how technological innovation can support more inclusive and sustainable financial systems without compromising financial stability or consumer protection.

Furthermore, the growing visibility of sustainable development and financial stability indicates that researchers are increasingly integrating financial inclusion within broader sustainability frameworks. This evolution reflects

the influence of global initiatives such as the United Nations Sustainable Development Goals (SDGs), increasing regulatory attention towards sustainable finance, and the incorporation of Environmental, Social, and Governance (ESG) principles into banking practices. As a result, financial inclusion is no longer viewed merely as an instrument for expanding access to financial services but also as a strategic mechanism for promoting inclusive economic growth, financial resilience, and sustainable development.

The combined evidence from Figures 12 and 13 demonstrates that financial inclusion and sustainable banking research is undergoing a significant paradigm shift. Earlier studies were primarily concerned with expanding financial access through microfinance and rural banking initiatives, whereas contemporary research increasingly focuses on digital financial ecosystems, sustainable finance, technological innovation, and financial resilience. This evolution illustrates the growing convergence between financial inclusion, digital transformation, and sustainability, thereby creating a more multidisciplinary and policy-oriented research landscape.

Based on these findings, several promising directions for future research can be identified. First, although FinTech, digital finance, and financial technology have become dominant research themes, relatively limited empirical evidence exists regarding their long-term implications for sustainable banking, financial resilience, and inclusive economic development. Future studies should therefore investigate how emerging technologies such as artificial intelligence, machine learning, blockchain, big data analytics, and central bank digital currencies (CBDCs) can support sustainable financial inclusion while addressing challenges related to governance, ethics, cybersecurity, and regulatory compliance.

Second, future research should strengthen comparative investigations involving developed and developing economies. While countries such as India, China, Malaysia, Indonesia, and several African economies have become major contributors to the literature, further comparative studies are needed to examine how differences in institutional quality, digital readiness, regulatory environments, and financial infrastructure influence financial inclusion outcomes and sustainable banking performance.

Third, increasing attention should be directed towards integrating financial inclusion with broader sustainability agendas. Future studies should investigate how financial institutions can simultaneously promote financial accessibility, environmental sustainability, social responsibility, and long-term financial stability through ESG implementation, green finance, climate finance, and responsible banking practices. Such interdisciplinary research will contribute to the development of more comprehensive policy frameworks capable of addressing emerging global financial challenges.

Overall, the combined trend topic and keyword frequency analyses demonstrate that financial inclusion and sustainable banking research has evolved from a relatively narrow focus on financial access towards a multidisciplinary research domain integrating digital innovation, sustainable finance, governance, and financial resilience. The continued emergence of technology-driven and sustainability-oriented themes suggests that future research should move beyond conventional banking perspectives and develop integrated frameworks capable of supporting inclusive, resilient, and sustainable financial systems. Such efforts will provide valuable guidance for policymakers, financial institutions, and researchers seeking to achieve sustainable economic development through inclusive financial ecosystems.

SUMMARY OF FINDINGS

This study provides a comprehensive bibliometric assessment of intellectual development, collaboration landscape, and emerging research directions in financial inclusion and sustainable banking. By integrating bibliometric techniques with content analysis, the study offers a systematic overview of how the field has evolved over time and identifies key contributors, dominant research themes, collaborative patterns, and future research opportunities. Collectively, the findings provide a holistic understanding of the current state of the literature while highlighting the dynamic nature of research in this rapidly evolving domain.

The publication trend analysis demonstrates that financial inclusion and sustainable banking have experienced substantial growth in scholarly attention, particularly over the past decade. The increasing number of publications reflects the growing importance of financial inclusion within both academic discourse and public

policy, driven by global concerns surrounding financial accessibility, digital transformation, sustainable development, and inclusive economic growth. This continuous expansion of the literature suggests that financial inclusion has evolved from a specialised research area into an established multidisciplinary field that intersects finance, economics, technology, sustainability, and public policy.

The bibliometric performance analysis further reveals that the development of the field has been shaped by contributions from a diverse group of authors, journals, institutions, and countries. India emerged as the most productive country, while other major contributors, including the United States, China, the United Kingdom, Indonesia, and Malaysia, have played significant roles in expanding the global knowledge base. The geographical diversity of research contributions indicates that financial inclusion and sustainable banking are no longer confined to a particular region but have become global research priorities influenced by different institutional, regulatory, and socio-economic contexts.

The thematic and conceptual analyses indicate that the intellectual structure of the field has undergone considerable transformation. Earlier research predominantly focused on financial access, microfinance, rural finance, and poverty reduction. However, recent studies increasingly emphasise digital financial services, FinTech, financial technology, sustainable banking, financial resilience, and sustainable development. This thematic evolution demonstrates that financial inclusion is no longer examined solely as a mechanism for improving access to financial services but is increasingly positioned as a strategic component of sustainable financial systems and inclusive economic development.

The collaboration analysis highlights the growing internationalisation of research within the field. Strong collaborative relationships among countries illustrate the increasing exchange of knowledge and expertise across geographical boundaries. Such international partnerships facilitate comparative research, methodological innovation, and interdisciplinary collaboration, enabling researchers to address complex global challenges associated with financial inclusion, sustainable banking, digital finance, and financial resilience. The findings suggest that continued international collaboration will remain essential for advancing both theoretical and practical knowledge in this area.

The trend topic analysis further demonstrates that financial inclusion and sustainable banking research is entering a new phase characterised by technological innovation and sustainability integration. Emerging topics such as digital finance, financial technology, FinTech, financial stability, and sustainable development indicate a shift towards examining how financial institutions can simultaneously promote financial accessibility, technological advancement, environmental sustainability, and long-term economic resilience. These developments suggest that future research will increasingly adopt interdisciplinary approaches that integrate finance, digital technology, governance, and sustainability to address evolving financial challenges.

Overall, the findings demonstrate that financial inclusion and sustainable banking research has progressed from a relatively narrow emphasis on financial accessibility towards a comprehensive and multidisciplinary research domain encompassing digital transformation, sustainable finance, governance, technological innovation, and inclusive development. This evolution reflects the changing priorities of policymakers, financial institutions, and researchers in responding to contemporary global challenges. By systematically mapping the intellectual landscape of the field, this study contributes to the literature by providing a comprehensive understanding of its development, identifying emerging research frontiers, and establishing a foundation for future scholarly inquiry and evidence-based policy formulation.

CONCLUSION

This study provides a comprehensive bibliometric review of financial inclusion and sustainable banking research based on 1,112 publications retrieved from the Scopus database. By combining bibliometric, network, and content analyses, the study systematically mapped the evolution of the research field, identified influential authors, journals, countries, and collaboration networks, and examined the intellectual structure through keyword co-occurrence and thematic analyses.

The findings demonstrate that financial inclusion and sustainable banking have evolved into a rapidly growing and multidisciplinary research domain. The increasing volume of publications, expanding international collaborations, and diversification of research themes indicate that scholars increasingly recognise the strategic role of financial institutions in promoting sustainable development, financial resilience, and inclusive economic growth. The intellectual structure of the field is characterised by strong connections between financial inclusion, sustainable finance, digital financial services, ESG integration, Islamic finance, and responsible banking practices, illustrating the progressive integration of economic, environmental, technological, and social dimensions within banking research.

This study contributes to the existing literature by providing a systematic overview of the development of financial inclusion and sustainable banking research while identifying emerging themes and future research opportunities. The findings offer valuable insights for researchers, policymakers, regulators, and financial institutions seeking to strengthen inclusive and sustainable financial systems. As financial services continue to evolve in response to technological innovation, sustainability challenges, and changing regulatory expectations, future research should adopt more interdisciplinary and comparative approaches to better understand how financial inclusion and sustainable banking can jointly contribute to long-term sustainable development.

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