

A Bibliometric Analysis on Financial Inclusion and Financial Literacy – Analyzing the Current Research Trends

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Abstract

Purpose : Bibliometric analysis acts as a road map in research and helps understand the existing body of knowledge. We conducted a bibliometric analysis in the field of financial inclusion (FI) and financial literacy (FL).

Design/Methodology/Approach : We used Biblioshiny through R studio on 2,836 documents extracted from WOS and Scopus databases from 1984 to 2022.

Findings : We identified prominent authors, highly cited publications, significant themes and keywords, and co-citation networks.

Originality/Value : This study used Scopus and Web of Science (WOS) data to conduct the bibliometric analysis.

Practical Implications : The research results will be significant to scholars, researchers, and policymakers in FI and FL, as the study showed the roadmap and pathways to scientifically understanding current and future research trends.

Keywords : financial inclusion, financial literacy, financial development, financial behaviour, growth, mobile money, fintech, financial planning

JEL Classification Codes : G21, G28, G53

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Financial inclusion (FI) indicates access to useful and affordable financial products and services that meet individuals' and institutions' transactions, payments, savings, credit, and insurance obligations. Financial services facilitate financial needs (Demirgüç-Kunt et al., 2018) and enhance welfare (Allen et al., 2016). To provide access to financial products and services, FI is essential for developing nations (Sethy & Goyari, 2018). It acts as an engine for economic development and growth (Kaur & Pasricha, 2019; Sharma & Sharma, 2017) and ensures sustainable development (Yadav & Sharma, 2018).

Multiple factors determine FI, which includes income, gender, literacy, and age (Bhanot et al., 2012; Dar & Ahmed, 2021), employment status, geography, marital status, household size, trust in financial institutions (Soumaré et al., 2016; Zins & Weill, 2016), economic growth, unemployment rate, rural population, and effective implementation of financial literacy (FL) (Sathiyar & Panda, 2016). Other factors include the cost involved in

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financial services and individual perception of financial products and services (Esquivias et al., 2021; Ngo, 2019). FL facilitates wise financial decisions (Bongomin et al., 2018) by enhancing awareness (Grohmann et al., 2018; Tripathi et al., 2016). Despite their importance, FL is very low among underprivileged, poor, and weaker sections (Demirgüç-Kunt et al., 2018; Klapper et al., 2015) and people living in rural areas (Kavita & Suman, 2019).

This paper aims to conduct a bibliometric analysis of FI and FL that can analyze current research trends, advances, prominent authors, citations, and contributions across geography, trends, and topics. The bibliometric analysis does quantitative analysis of publications where the ranking of authors, institutions, universities, and countries is done (Ellegaard & Wallin, 2015). Bibliometric data from the Web of Science (WOS) and Scopus are considered. Only a few evidential papers analyzed both databases (Archambault et al., 2009; Echchakoui, 2020; Gorraiz & Schloegl, 2008; Zhu & Liu, 2020).

Literature Review

FL is crucial for the progress of FI (Grohmann et al., 2018). Scholars and development agencies, especially in developing countries, have advised FL to be adopted as a measure to increase the access and use of financial products and services (Bongomin et al., 2018). Literature indicates a strong nexus between literacy and FI (Bongomin et al., 2018; Grohmann et al., 2018; Morgan & Long, 2020). With technological advances, FI creates inclusive growth (Wang et al., 2023).

Despite this importance, the FL level is very low worldwide, especially among the underprivileged (Demirgüç-Kunt et al., 2018; Klapper et al., 2015). Financial exclusion is a major concern, as globally, 1.4 billion people are unbanked, which indicates that this area needs more in-depth and intensive study to understand the nuances better (Fernández-Olit et al., 2020). Lack of funds, cost, distance, trust, and poor FL (Demirgüç-Kunt et al., 2022) are a few reasons for not having a bank account. FL is an important determinant of FI and is crucial for the progress of FI (Grohmann et al., 2018).

Gálvez-Sánchez et al. (2021) conducted a bibliometric analysis on FI from the Scopus database. Aziz et al. (2021) analyzed the literature on digital banking and FI, Ingale and Paluri (2022) used 1,138 documents from WOS from 1985 – 2020 for the research area FL and financial behavior, Goyal and Kumar (2021) analyzed 502 research publications from WOS from 2000 – 2019 on FL, and Chhatoi et al. (2021) analyzed 463 articles from the Scopus database in the area of FI.

Various studies have been done concerning FL and FI, focusing on how FL helps increase access to finance and thereby promote FI (Akpene Akakpo et al., 2022). Although there is a well-established body of knowledge in this field, due to this existing scenario of FI and FL globally, there are still research gaps in this area that offer room for additional investigation (Fernández-Olit et al., 2020). Therefore, to be able to provide insights into the existing research, we identify the relevant research areas and future trends of research in the field of FI and FL, which will address the current problems existing in this field that still need to be studied, a scientific literature review of the studies in this field still needs to be explored in the literature. Bibliometric analysis on clubbing both FI and FL is an under-researched area. The background of a positive relationship between FI and FL makes it important to conduct a bibliometric analysis of these terms together.

Research Objectives

- (1) To analyze the bibliometric information of the fields of FI and FL.
- (2) To identify the most cited sources, journals, authors, countries, references, and trend topics in the field of FI and FL.

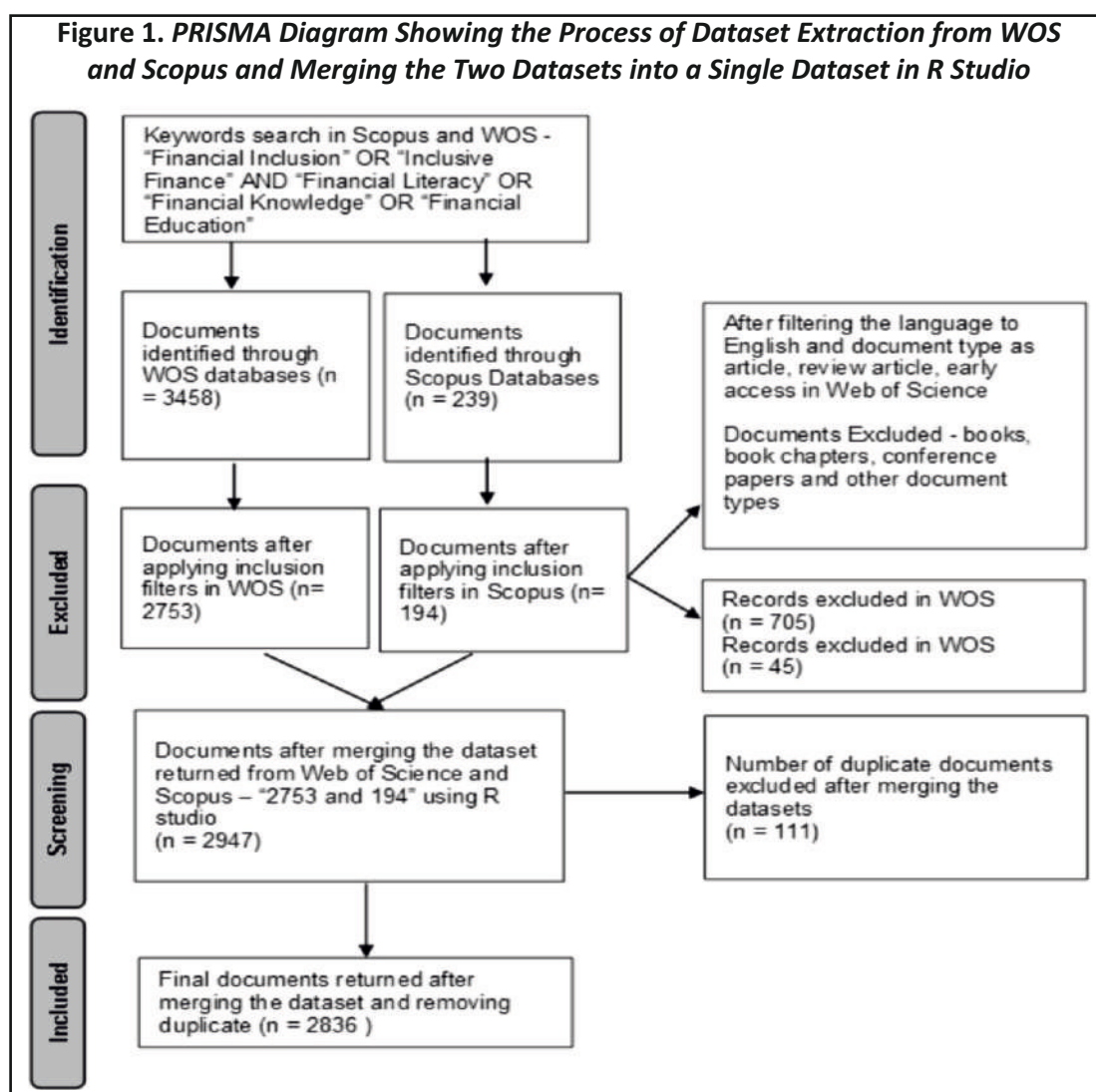
(3) To identify the current trend topics and future scope of research in the study area.

Methodology

Bibliometric information of the field FI and FL is analyzed using Biblioshiny in R studio, taking secondary data separately from WOS and Scopus in a suitable format for the period from 1984 – 2022 and then merged into a single .xlsx file using R studio suitable for analysis in Biblioshiny.

Search Procedure and Filters Applied

↳ **Search Procedures and Keywords :** Data were extracted from WOS and Scopus databases. Our search keywords include - “Financial Inclusion” OR “Inclusive Finance” AND “Financial Literacy” OR “Financial Knowledge” OR “Financial Education” (Delgadillo, 2014).



↳ **Data Filtering** : Data were extracted on October 30, 2020; 3,458 documents were returned from WOS, and 239 papers from Scopus. Documents were refined based on refining strategy, language, document type, and access. We have only used document types like articles, review articles, and early access.

After fine-tuning the data, documents were merged into a single .xlsx file; 111 duplicate documents were removed, and 2,836 documents were finally extracted. Figures 1 and 2 indicate the PRISMA strategy adopted for data inclusion and extraction. Table 1 indicates a summary of the data with all descriptions.

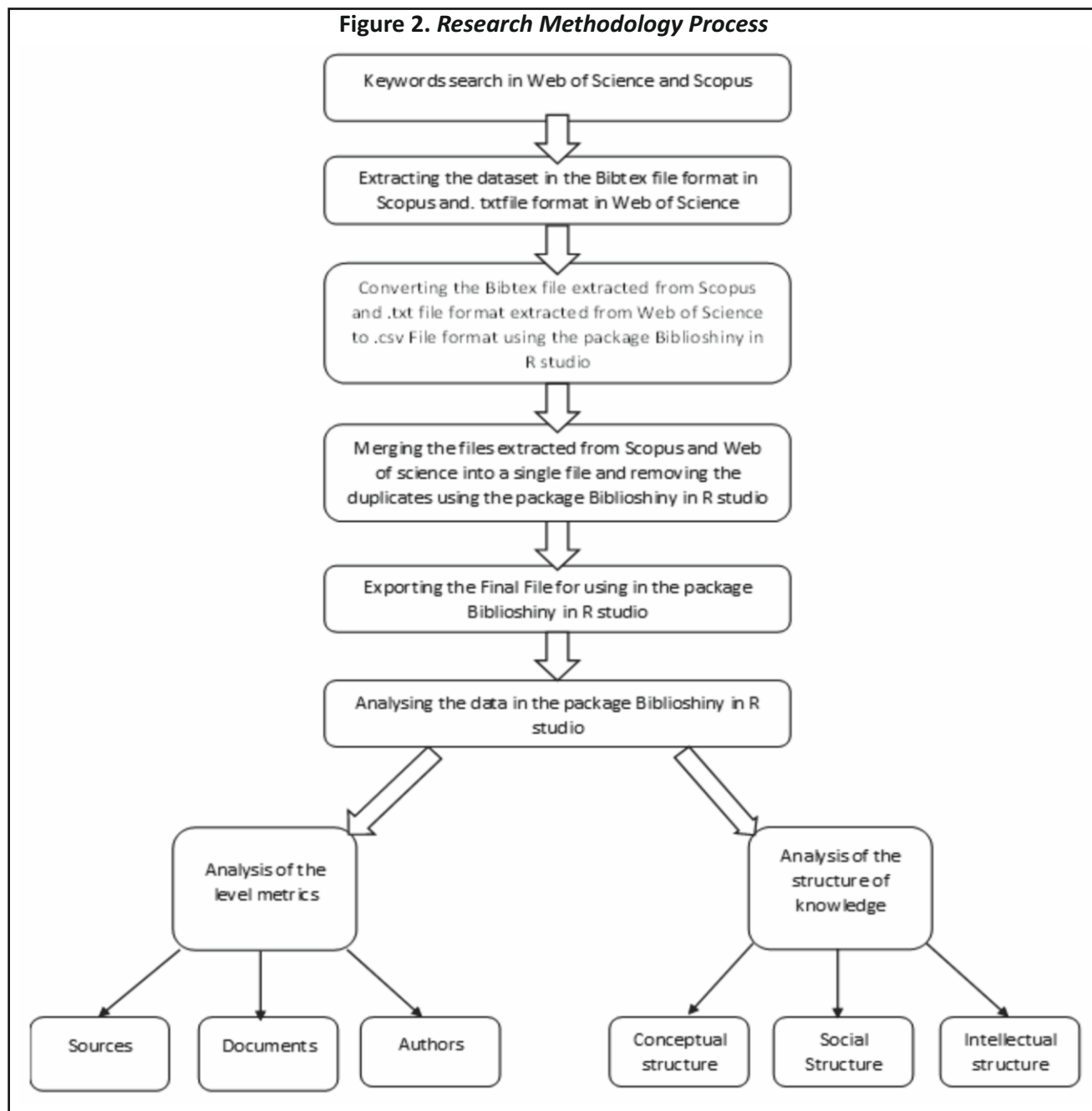


Table 1. Main Information about the Data

Description	Results
Timespan	1984:2022
Sources (Journals, Books, etc.)	1,141
Documents	2,836
Average years from publication	3.93
Average citations per document	10.59
Average citations per year per doc	1.955
References	95,109
Document Types	
Article	2,760
Early access	2
Review	74
Authors	
Authors	5337
Author Appearances	7387
Authors of single-authored documents	522
Authors of multi-authored documents	4,815
Authors' Collaboration	
Single-Authored Documents	644
Documents per Author	0.531
Authors per Document	1.88
Co-Authors per Documents	2.6
Collaboration Index	2.2

Analysis and Results

Biblioshiny is a web interface for bibliometric databases, which involves analytics and plots for sources, authors, and documents and analysis of conceptual, intellectual, and social structures (Aria & Cuccurullo, 2017).

Annual Scientific Production

Table 2 shows the annual scientific production. The number of publications was 1 in 1984, which started increasing in 2006, with 86 documents in 2012, and a maximum number of publications (471) in 2020.

Table 2. Annual Scientific Production		2017	241
2013	110	2018	299
2014	116	2019	359
2015	115	2020	471
2016	180	2021	429
		2022	1

Table 3. Average Article Citations

Year	N	MeanTCperArt	MeanTCperYear
2003	4	102	5.37
2004	4	48.25	2.68
2005	11	50.54	2.97
2006	20	23.8	1.49
2007	25	25.24	1.68
2008	30	26.83	1.92
2009	24	26.66	2.05
2010	39	42.61	3.55
2011	74	33	3.01
2012	86	21.24	2.12
2013	110	22	2.45
2014	116	28.57	3.57
2015	115	19.6	2.80
2016	180	12.73	2.12
2017	241	10.77	2.15
2018	299	8.92	2.23
2019	359	5.05	1.68
2020	471	3.01	1.51
2021	429	1.10	1.11
2022	1	0	

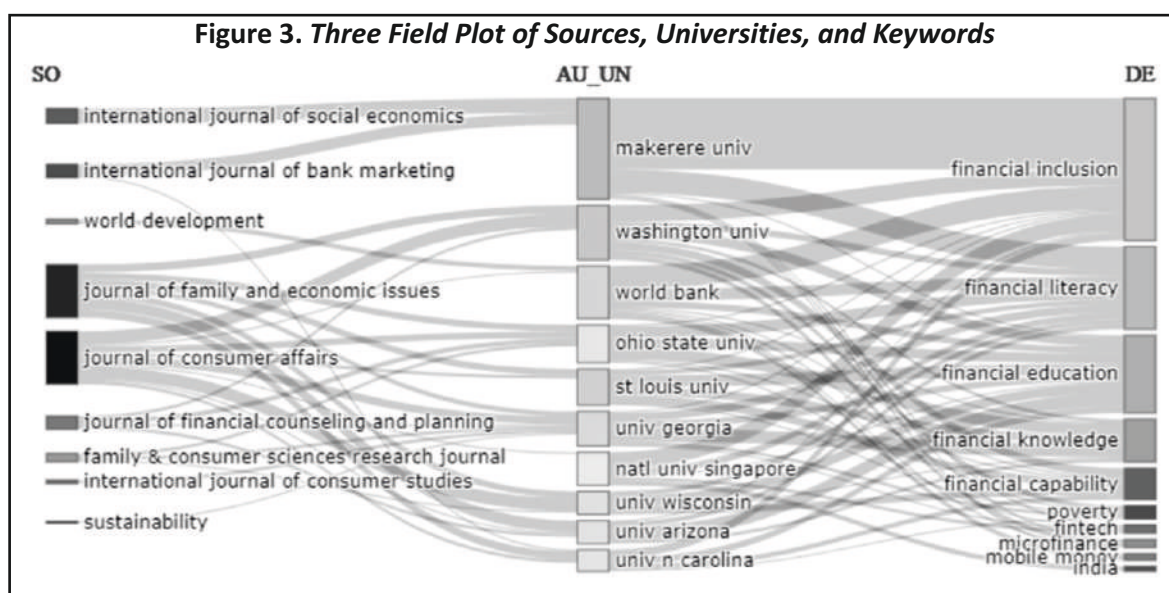
Average Article Citations per Year

Table 3 shows the average citations per article and the average article citation per year for the articles. The average article citation per year was from 0 in 1984 to 1.79 in 1988. The year 2000 recorded the highest average citation per article and highest average article citation year-wise, with an average of 125 and 5.7, respectively.

Three Field Plot

Arrow arcs in the three field plots show the flow of connecting fields and the interrelation of authors, keywords, journals, and countries through connecting nodes in the Sankey diagram (Munim et al., 2020 ; Riehmann et al., 2005).

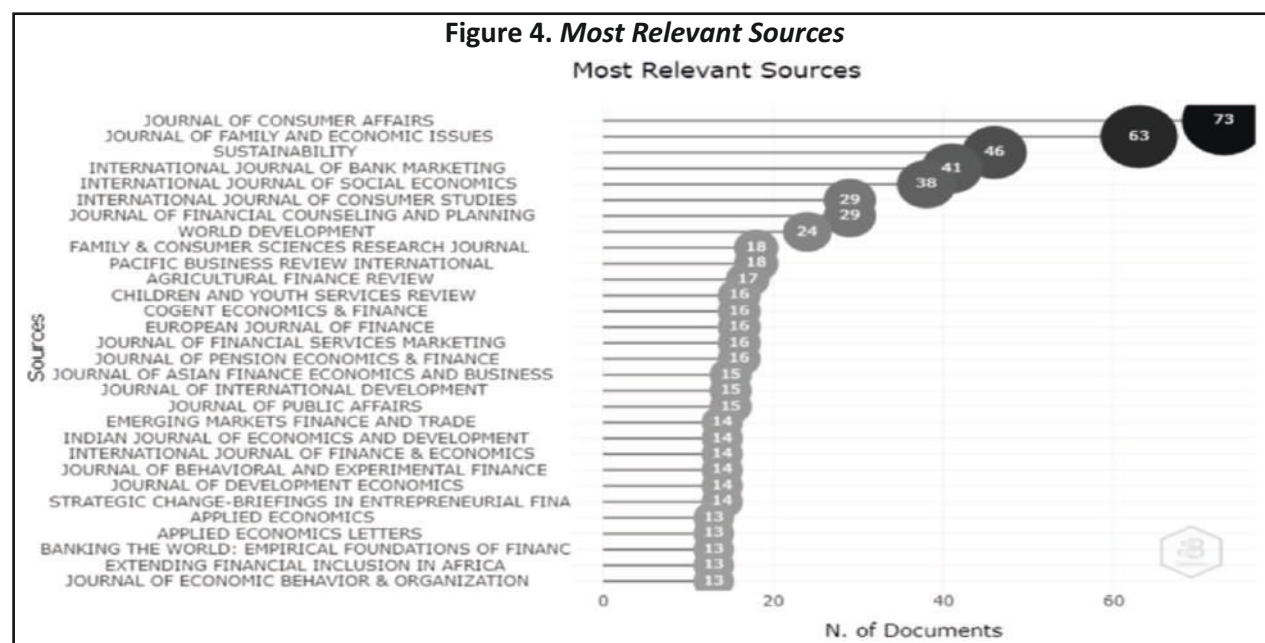
Figure 3 shows three field plots that visualize the relationship between sources (journals) on the left, the authors' universities in the middle, and keywords on the right. Contributions of 10 prominent universities to journals and keywords are shown. The University of Georgia has the highest incoming and outgoing flow. It has six incoming flows representing its contributions toward the journal and six outgoing flows representing its contribution toward the keywords. It indicates that they have contributed to six journals, namely the *Journal of Family and Economic Issues*, *Journal of Consumer Affairs*, *Journal of Financial Counselling and Planning*, *Family & Consumer Sciences Research Journal*, *International Journal of Consumer Studies and Sustainability*, and studies have been based on topics like “Financial Inclusion,” “Financial Literacy,” “Financial Education,” “Financial Knowledge,” “Poverty,” and “Fintech.”



Sources

We examined the most relevant and cited sources to identify the most prominent journal.

➤ **Most Relevant Sources.** Figure 4 represents the top 30 journals. Out of 2,836 documents, 670 were published in these journals, 23.62% of the total, indicating that publications are spread across different journals. Figure 4 shows that the *Journal of Consumer Affairs* is the most prominent journal, with 73 documents, followed by the *Journal of Family and Economic Issues*, with 63 documents, and the journal *Sustainability*, with 46 documents.



➤ **Most Local Cited Sources.** Figure 5 shows the most local cited journals. *Journal of Consumer Affairs* has the highest number of citations, with 1,842 citations, followed by the *American Economic Review*, with 1,715 citations.

Authors

To identify the most prominent authors, we examined authors with the highest number of publications and citations.

➤ **Most Relevant Authors :** Table 4 shows the relevant authors. Joyce Serido has the highest number of publications (25 publications), followed by Shim (24), and Okello Candiya Bongomin (with 23 publications).

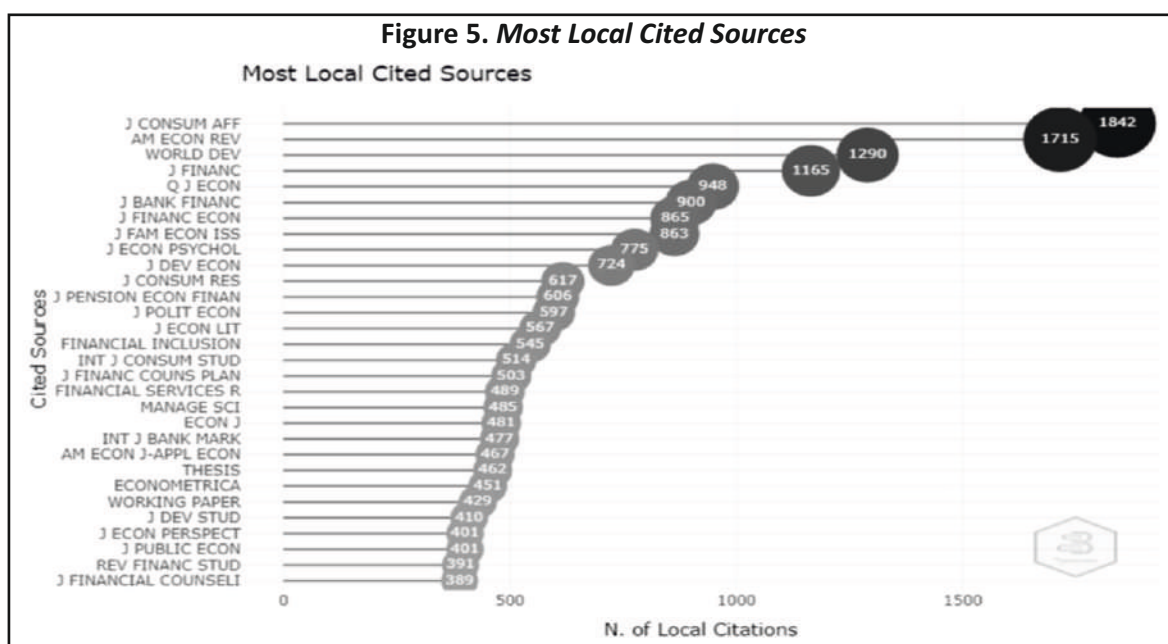


Table 4. Most Relevant Authors

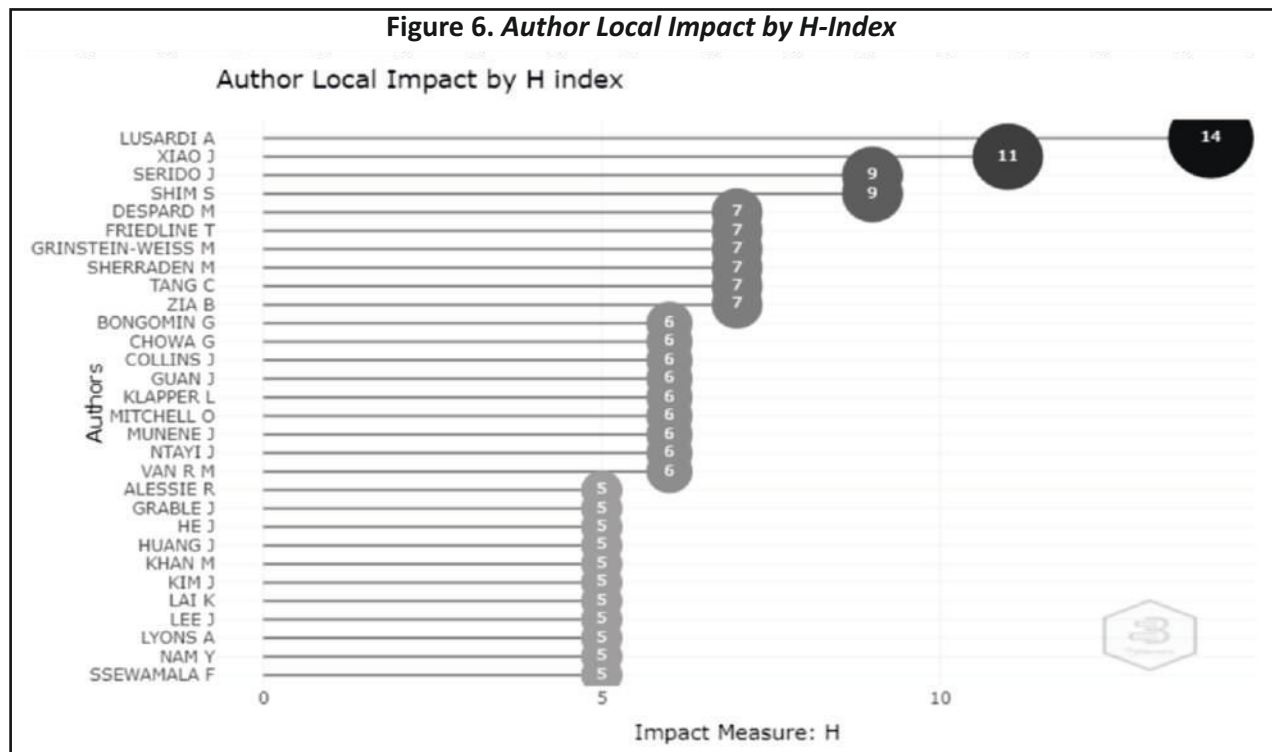
Authors	Articles
Joyce Serido	25
Shim	24
Okello Candiya Bongomin	23
Sherraden	22
Xiao	22
Munene	20
Lusardi	19
Ntayi	19
Lee	14
Kim	13

Table 5. Most Local Cited Authors

Author	Local Citations
Lusardi	773
Xiao	446
Mitchell	328
Shim	320
Joyce Serido	306
Alessie	281
van Rooij, Maarten	280
Leora Klapper	229
Fernandes	200
Lynch	200

➤ **Most Local Cited Authors.** Table 5 shows the most cited authors. Lusardi has the maximum number of citations totaling 773 citations, followed by Xiao with 446 citations; Mitchell, Shim, and Joyce Serido have more than 300 citations each.

➤ **Author Local Impact by H - Index.** H - index is widely used (Forliano et al., 2021; Hirsch, 2010) to analyze authors' performance and reflects authors' impact in terms of productivity (Akter et al., 2021). Figure 6 demonstrates the H - index of the top 30 authors. Lusardi is the most impactful author, with the highest H - index of 14. Xiao and Shim are the other most impactful authors.



Country – Wise Scientific Production

Table 6 indicates country-wise scientific production. The United States of America (USA) has the highest productivity with 1,731 publications showing FI and FL as an interesting area among the research fraternity, followed by India with 424 publications, the United Kingdom (UK) with 406 publications, and China with 387 publications. Poland, South Korea, Vietnam, Sweden, Switzerland, and Kenya have fewer publications.

Most Cited Countries

Table 7 shows the total citation of countries. The USA got the highest number of 14,293 citations, the United Kingdom with 2,820, China with 1,507, and India with 1,499 citations. The USA received 51.8% of the total citations, indicating that the USA surpasses other countries in terms of citations.

Documents

Table 8 represents the top most cited papers. Lusardi and Mitchell got a maximum of 840 citations. Their article

Table 6. Country – Wise Scientific Production

Region	Freq
USA	1731
India	424
UK	406
China	387
Australia	197
Malaysia	147
Nigeria	118
South Africa	116
Netherlands	110
France	109

Table 7. Most Cited Countries

Country	Total Citations
USA	14,293
UK	2,820
China	1,507
India	1,499
Netherlands	1,317
Australia	857
Germany	753
Canada	433
France	391
Spain	330

Table 8. Most Global Cited Documents

Paper	DOI	Total Citations
Lusardi & Mitchell (2014), <i>Journal of Economic Literature</i>	10.1257/jel.52.1.5	840
Fernandes et al. (2014), <i>Management Science</i>	10.1287/mnsc.2013.1849	472
Van Rooij et al. (2011), <i>Journal of Financial Economics</i>	10.1016/j.jfineco.2011.03.006	417
Huston (2010), <i>Journal of Consumer Affairs</i>	10.1111/j.1745-6606.2010.01170.x	407
Beverstock (2002), <i>Geoforum</i>	10.1016/S0016-7185(02)00036-2	287
Van Rooij et al. (2012), <i>The Economic Journal</i>	10.1111/j.1468-0297.2012.02501.x	268
Shim (2010), <i>Journal of Youth and Adolescence</i>	10.1007/s10964-009-9432-x	237
Grable (2000), <i>Journal of Business and Psychology</i>	10.1023/A:1022994314982	215
Bernheim & Garrett (2003), <i>Journal of Public Economics</i>	10.1016/S0047-2727(01)00184-0	214
Hastings et al. (2013), <i>Annual Review of Economics</i>	10.1146/annurev-economics-082312-125807	209

published in the *Journal of Economic Literature* focused on identifying the level of FL in understanding economic information, financial products and services, and different ways of making an informed financial decision by outlining a theoretical framework, and prepared a model indicating that financial knowledge can be considered as a type of investment in human capital.

Trend Topics – Keywords

To identify the current research, we have analyzed the frequency of keywords, as seen in Table 9. The word “Financial” appeared 2,147 times, which is the maximum, followed by “Inclusion” and “Literacy.” The high frequency of the word “Financial” indicates that the trend of FI and FL is being researched extensively in nexus with other financial factors and indicators like “Financial Development,” “Financial Behaviour,” “Financial Planning,” and “Financial Growth,” among others. Apart from the words “Financial,” “Inclusion,” “Literacy,” “Evidence,” “Education,” “Knowledge,” and “Development” also have a high frequency. “Financial Literacy,” “Financial Education,” and “Financial Knowledge” are used interchangeably in the literature, thereby indicating the high frequency of the words “Education” and “Knowledge.”

Trending topics in 2016 were planning, learning, policy, college, capability, and retirement. In 2017, it was exclusion, evaluation, low income, differences, and attitude; in 2018, credit, finance, development, knowledge, education, and literacy; in 2019, mobile, evidence, India, inclusion, and financial; in 2020, fintech, sustainable, China, growth, countries, and digital.

TreeMap – Keywords

Table 10 represents the most frequently used words. “Financial Inclusion” is the most frequent word, with a

Table 9. Trend Topics Based on Keywords			
Item	Frequency		
Financial	2,147	Growth	75
Inclusion	749	Retirement	64
Literacy	349	Capability	63
Evidence	319	China	61
Education	274	Consumer	56
Knowledge	182	Effect	52
Development	175	Sustainable	49
Finance	149	College	45
India	149	Policy	44
Mobile	149	Fintech	42
Role	148	Planning	40
Study	139	Attitudes	38
Impact	132	Program	37
Credit	127	Learning	36
Digital	95	Differences	35
Countries	94	Low income	32
		Evaluation	31
		Exclusion	30

Table 10. TreeMap Table Based on the Author's Keywords

Terms	Frequency		
Financial Inclusion	809	Poverty	65
Financial Literacy	408	Financial Behaviour	59
Financial Education	260	Gender	59
Financial Knowledge	151	Savings	51
Microfinance	114	Africa	49
Mobile Money	74	Financial Services	48
Fintech	72	Economic Growth	47
Financial Capability	70	Financial Exclusion	45
India	68	Finance	40
		Personal Finance	39
		Financial Development	36

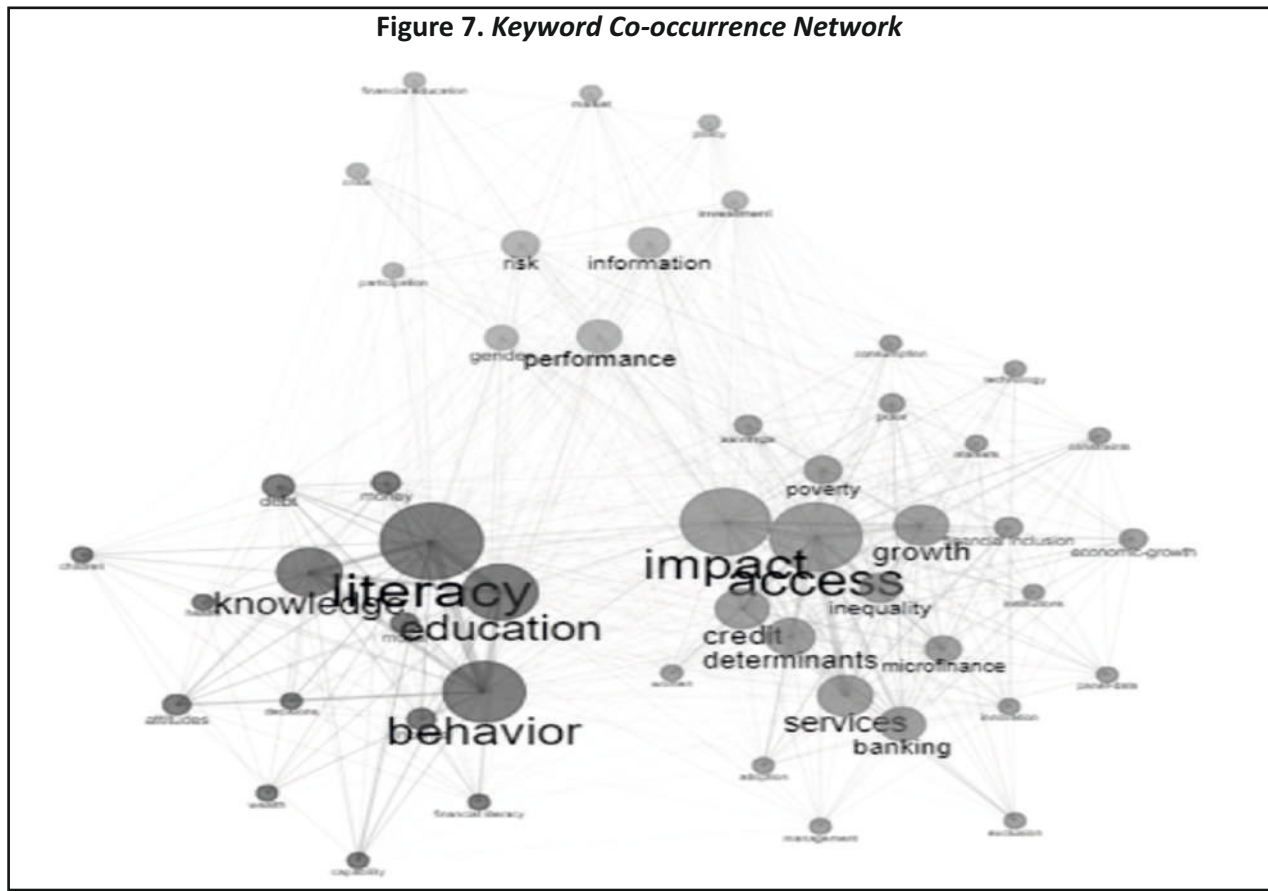
frequency of 809 times, followed by “Financial Literacy,” “Financial Education,” and “Financial Knowledge.” “Microfinance,” “Mobile Money,” “Fintech,” and “Financial Capability” also have high frequency, indicating that these topics are frequently researched in nexus with the topic “Financial Inclusion” and “Financial Literacy.” Similar keywords were identified in a review study conducted by Ledwani and team (Ledwani et al., 2022). Among the countries, “India” appears to have the maximum frequency indicating that many studies have taken India as a study area. It also indicates that research on FI and FL has been mainly focused on developing countries, as FI and FL are the need of the hour for governments and policymakers, thereby becoming a topic of interest for researchers.

Conceptual Structure

The conceptual structure identifies future research trends by understanding the connections between various concepts in the literature (Akter et al., 2021), takes the research article's content, and helps identify the interaction between themes, topics, and trends using the co-occurrence network (Ingale & Paluri, 2022).

🔗 **Co-occurrence Network.** A co-occurrence network is a connection occurring among the same terms appearing in a specific collection. The more co-occurrences identified, the nearer the words appear to the center of the network map. The more keywords the authors utilized simultaneously, the closer and more robust the links get, and the bubbles become larger (Forliano et al., 2021). “Keyword plus” are words extracted by a computer algorithm based on commonly found words in titles and the reference list of documents. Using the Louvain cluster algorithm by default, 50 nodes representing keywords form a keyword co-occurrence network (Ingale & Paluri, 2022), as shown in Figure 7. There are three clusters; the top, left, and right. The top cluster represents words like performance, risk, information, gender, investment, market, and policy, showing themes focusing on financial information and regulatory policies. The left cluster represents words like literacy, knowledge, education, behavior, income, and attitude, highlighting themes focusing on FL and financial behaviour. Lastly, the right cluster represents words like impact, access, growth, credit, services, banking, microfinance, and poverty, reflecting the themes surrounding financial aspects and indicators.

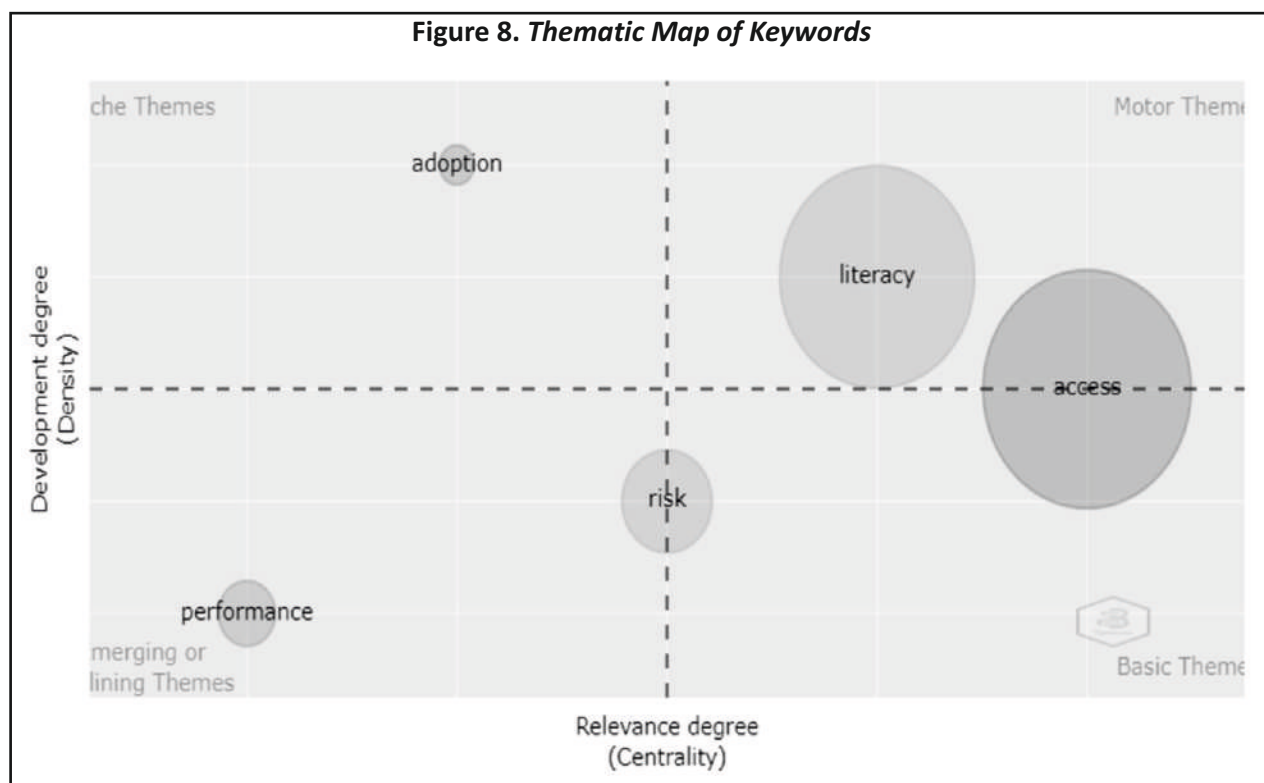
Figure 7. Keyword Co-occurrence Network



Thematic Map

Thematic maps quantify and visualize the thematic evolution of a research field using a two-dimensional diagram where themes are plotted based on their centrality and density rank values. The themes are classified into four quadrants. Themes in the upper-right quadrant have strong centrality and high density and are known as motor themes; these themes are well-developed and important for structuring a research field. Themes in the upper-left quadrant are of marginal importance to the field known as niche themes, with themes being very specialized and peripheral in nature and having only well-developed internal connections and external connections that are not important. Themes in the lower-left quadrant represent emerging or declining themes that are weakly developed and have low density and centrality. Themes in the lower-right quadrant are general and basic themes that are not developed but are important for structuring a particular research area (Cobo et al., 2011).

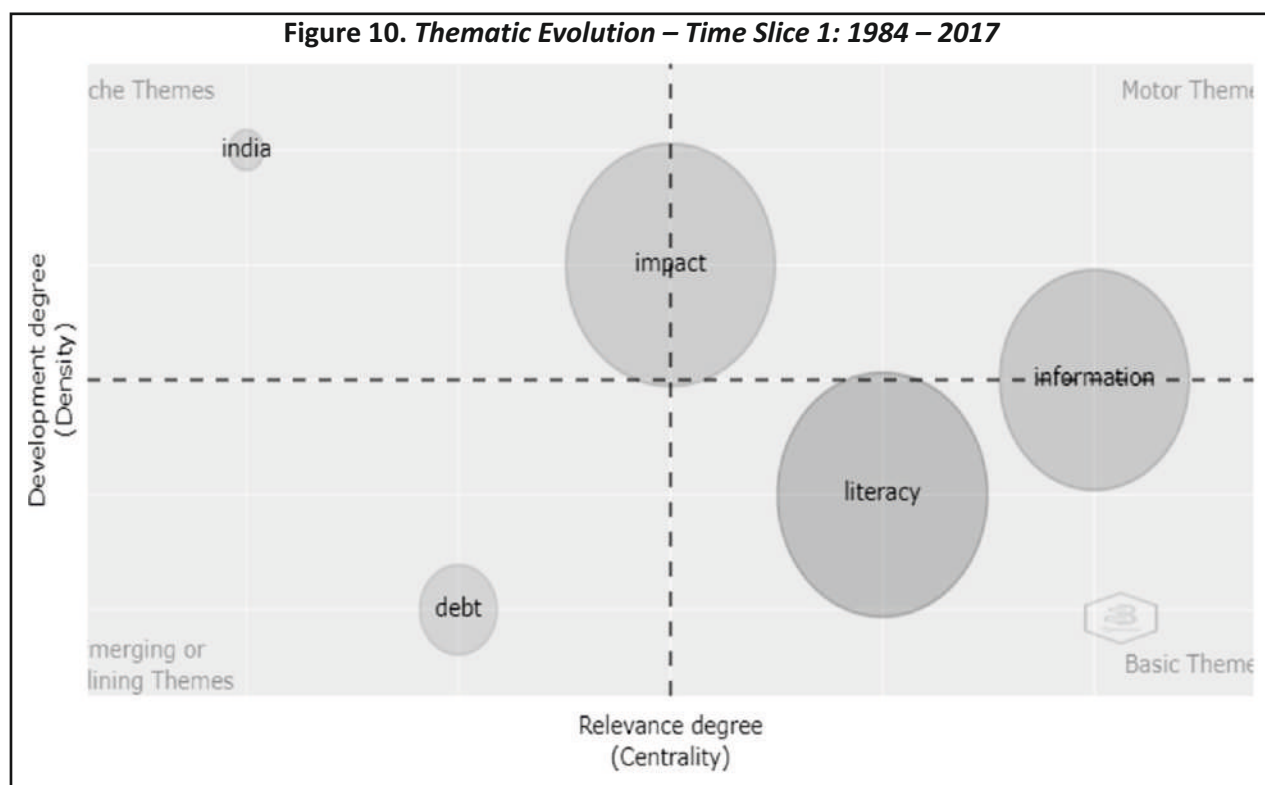
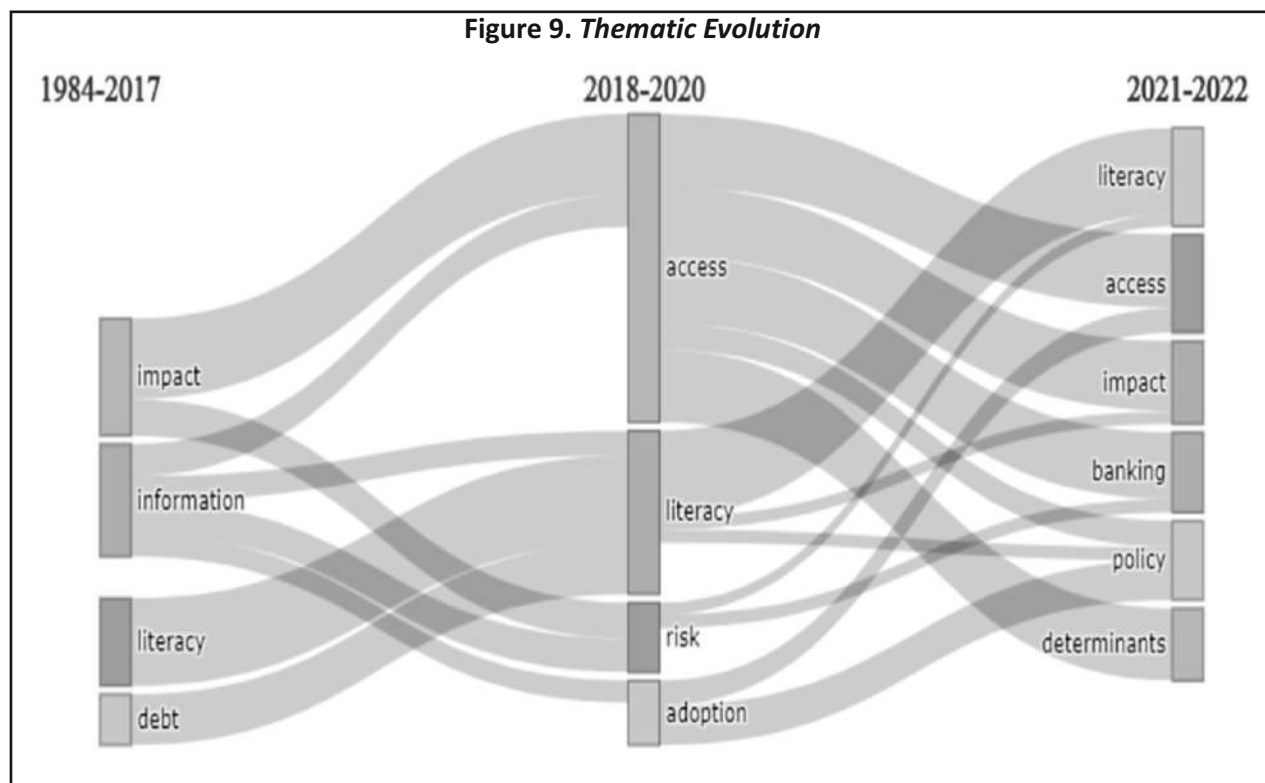
Figure 8 represents a thematic map of keywords or themes extracted. Themes in the upper-right quadrant, “literacy,” is a motor theme, having strong centrality and density, and is an important theme for structuring our research field. The theme in the upper-left quadrant, “adoption,” is a niche theme, having marginal importance, well developed internally with weak external connections. The theme in the lower-left quadrant, “performance,” is an emerging or declining theme with low centrality and density and is weakly developed. The theme “risk” lies in the mid of the lower-left and lower-right quadrants, indicating it to be both an emerging or declining theme and a basic theme that is not developed but is important for structuring the field FI and FL. The theme “access” falls under both the upper-right and lower-right quadrants, indicating them to be motor and basic themes.

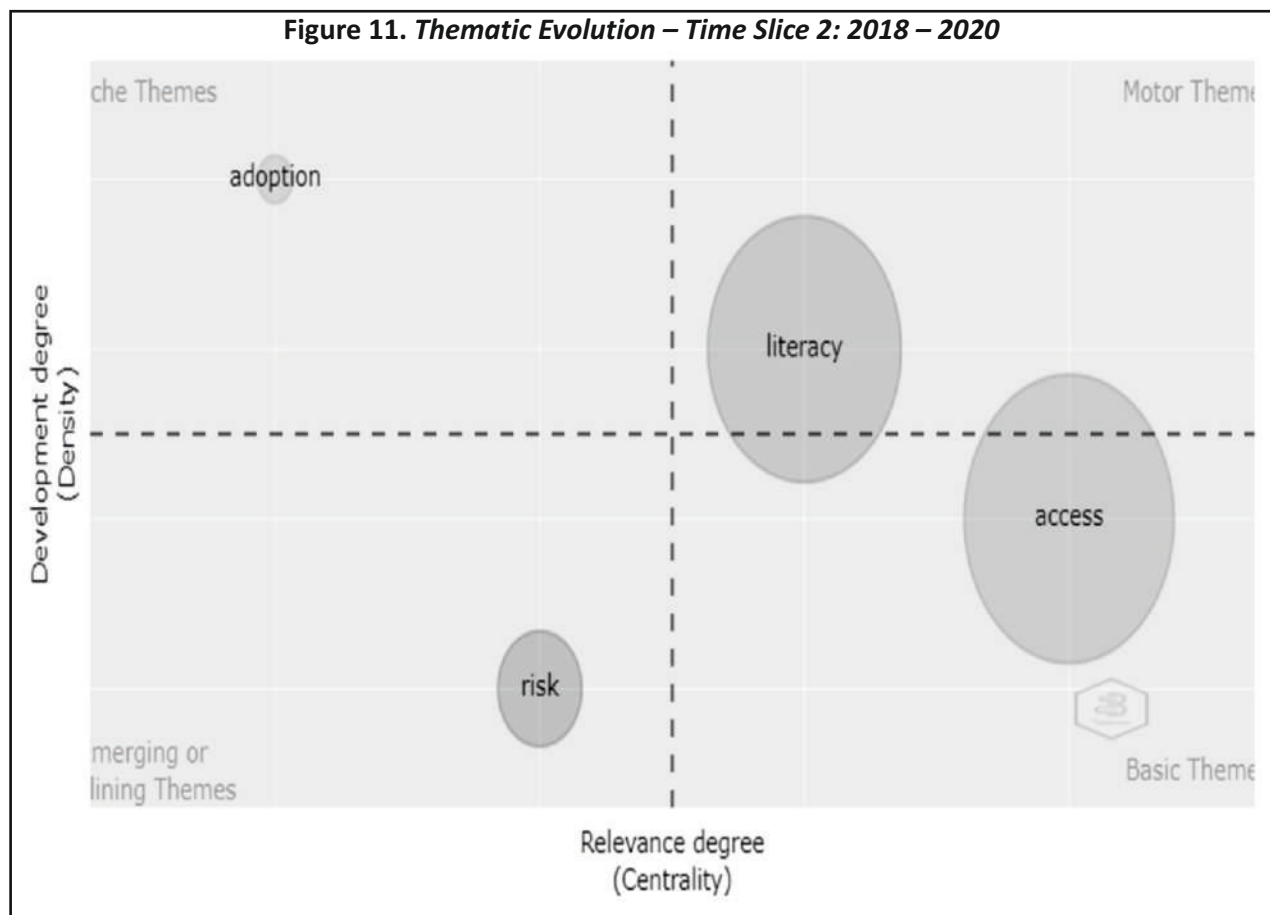


Thematic Evolution

Thematic evolution uses performance analysis and scientific mapping to identify themes and sub-themes of a particular research field for a specific period by dividing the time frame into different periods (Chen et al., 2019). Figure 9 shows the thematic evolution. For the thematic evolution map, 250 keywords were considered with a minimum cluster frequency (per 1,000 docs) of five, two cutting points of 2017 and 2020 were used, dividing the time frame into three-time slices, namely time slice 1 covering the period from 1984 – 2017, time slice 2 covering the period from 2018 – 2020, and time slice 3 covering the period from 2021 – 2022.

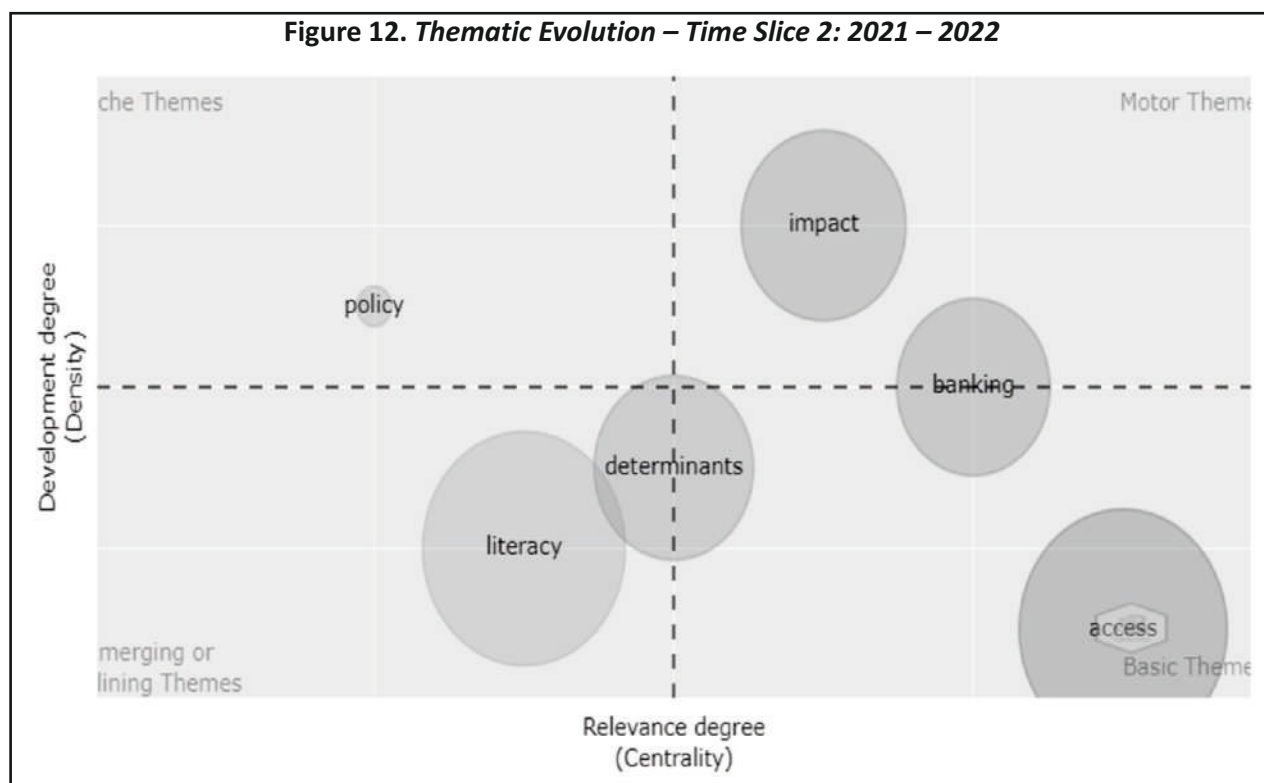
🔗 **Time Slice 1.** Figure 10 represents the thematic evolution of time slice 1, that is, 1984 – 2017, where it shows that the theme “impact” is in the mid of the motor, and niche themes tend to be an important theme on which research focused during this timeline in this field. Much attention was given to this theme by researchers. Research concentration on the theme “impact” must be concerning the impact of these indicators on FI and FL. “Information” falling on mid of motor and basic theme has been a topic of interest in this field from 1984 – 2017. “Literacy” falling under the basic theme is also a topic receiving attention from researchers during this period, and as the primary research field is FL, it indicates that the theme “literacy” is important for structuring the main research field. “Debt” falling under emerging or declining themes has been a topic that has not been able to develop during this time frame and thus did not garner much attention from researchers. “India” being on the niche theme quadrant indicates that “India” has been well developed in this field, thereby receiving much attention and is an important theme for structuring the field FI. It also indicates that many studies on FI and FL have focused on India as the study area.





✍ **Time Slice 2.** Figure 11 represents the thematic evolution of time slice 2, that is, 2018 – 2020, where it is observed that the theme “literacy” falls on the motor theme, indicating it to be an important theme on which research focused. “Access” falling on the basic theme reflects that “Access” is not an area of focus in this field during this time frame but has been an important topic among researchers. “Risk” falling under the emerging or declining themes has been a topic that has not been able to develop during this time frame, and thus, did not garner much attention. “Adoption” being on the niche theme quadrant indicates that the theme “adoption” has been well developed in this field, thereby receiving much attention, and is also an important theme for structuring the field FI.

✍ **Time Slice 3.** Figure 12 represents the thematic evolution of the time slice 3, that is, 2021 – 2022, where it is observed that the theme “impact” falls on the motor theme and “banking” is in the mid of the motor theme, and the basic theme indicates both of them to be an important theme on which research focused. “Access” falling on the basic theme reflects that the theme “access,” though not well developed in this field, has been an important topic among researchers. “Literacy,” falling under the emerging or declining themes, has been a topic that has not been able to develop during this time frame and thus has not garnered much attention. “Determinants” falling in the mid of the basic theme and emerging or declining theme indicates that this theme has not been well developed. “Policy” being on the niche theme quadrant indicates that the theme “policy” has been well developed in this field, thereby receiving much attention, and is also an important theme for structuring the field FI.



Intellectual Structure

The intellectual structure shows the relationship between different authors, journals, documents, etc., reflecting the contribution and changes evolving (Forliano et al., 2021). To identify the intellectual structure, co-citation analysis is used as an effective method (Jeong et al., 2014).

✍ **Co-Citation Network Analysis :** When two documents appear together in the reference section of the third document, they are said to be co-cited, and the more papers the authors cite, the stronger their relationship is (Ruggeri et al., 2019). Co-citation measures the degree of relationship between papers as per the perception of the citing authors. The relationship is established by citing authors where the patterns can change over time as per the changes in the interest and intellectual patterns (Small, 1973). Co-citation analysis, using pairs of documents cited together, maps the structure of a particular research field (Cobo et al., 2011). Figure 13 shows the co-citation network analysis. Following the Louvain clustering algorithm (Blondel et al., 2008) with the field as papers, 50 nodes, Figure 13 has been formed. Figure 13 shows two clusters reflecting author names. The co-cited papers in these clusters share a common theme representing the core knowledge of that particular research field (Ruggeri et al., 2019). Ranking the betweenness, a measure of centrality in a co-citation network analysis, can reflect the importance of the degree of citations (Lin et al., 2009). In Figure 13, the two clusters show the co-citation of papers with small nodes on them. In total, there are 50 nodes representing the top 50 co-cited papers in this field.

Table 11 represents the betweenness centrality ranking of top papers, where Lusardi and Mitchell (2014) have the highest betweenness centrality, followed by Cole et al. (2011). Lusardi and Mitchell (2014) form a cluster at the top, Cluster 1, showing the significant contribution to the field of FL. In the bottom cluster, that is, Cluster 2,

Figure 13. Co-citation Network of Papers Published in the Fields FI and FL

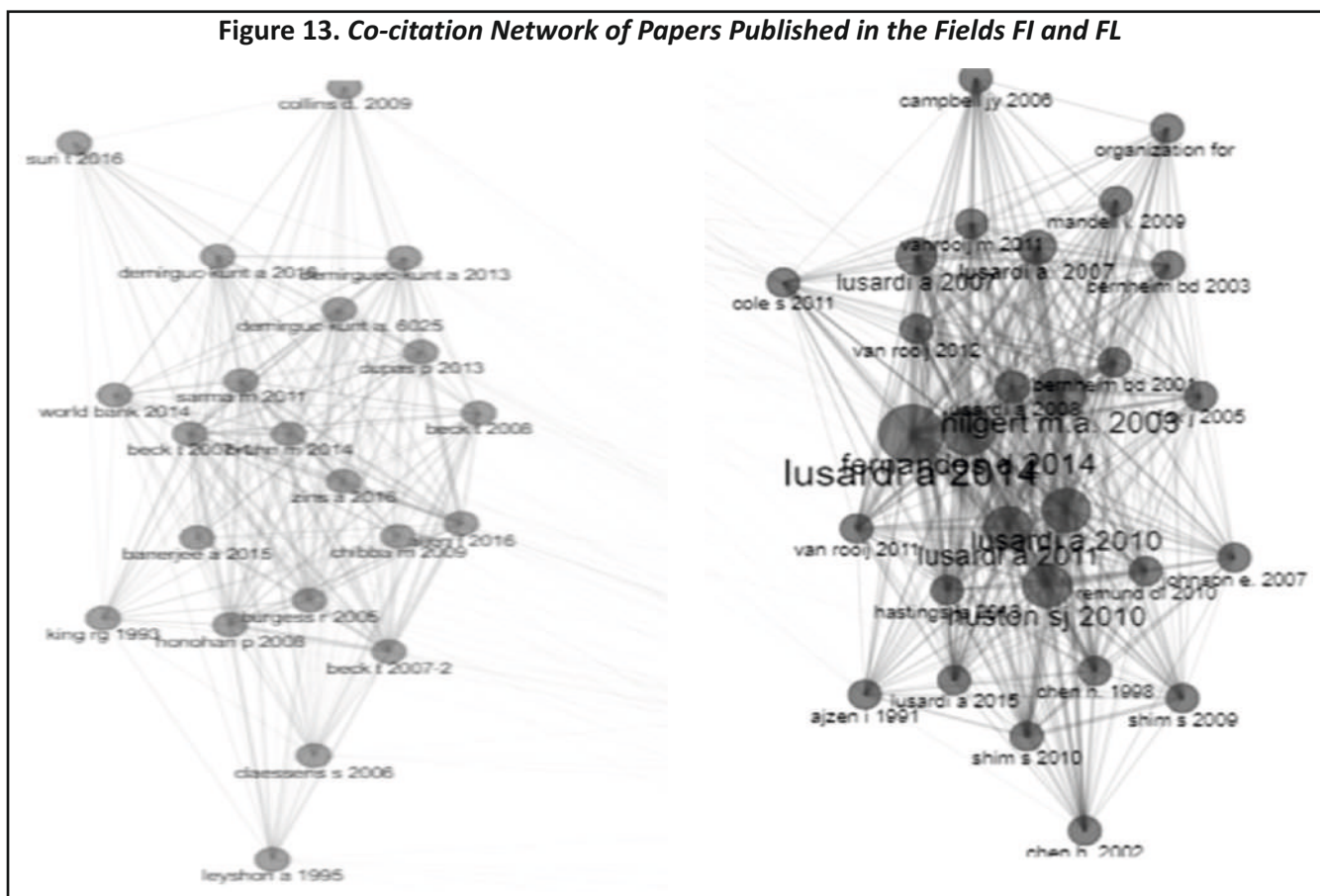


Table 11. Co-citation Network of Papers Published in the Fields FI and FL

Node	Cluster	
Lusardi (2014)	1	327.71
Cole (2011)	1	299.74
Lusardi (2007)	1	50.42
Fernandes (2014)	1	38.75
Ajzen (1991)	1	33.43
Van Rooij (2012)	1	22.29
Hilgert (2003)	1	13.49
Allen et al. (2016)	2	132.38
Leyshon (1995)	2	123.09

Dupas (2013)	2	99.61
Beck (2007)	2	79.62
Beck (2008)	2	67.67
Demirgüç-Kunt (2013)	2	39.34
Burgess (2005)	2	34.19
Collins (2009)	2	28.03
Banerjee (2015)	2	22.99
Sarma (2011)	2	15.43
World Bank (2014)	2	12.18
Claessens (2006)	2	10.39

Allen et al. (2016) have the highest betweenness centrality followed by Leyshon and Thrift (1995) and Dupas and Robinson (2013), showing significant contribution in the field of FI, indicators of FI, and factors affecting FI.

Social Structure

The social structure represents the relationship or network between different analysis units, like authors, universities, countries, etc. (Forliano et al., 2021). To analyze the social structure, we have used the collaboration network and analyzed two collaboration networks: the author collaboration network and the countries' collaboration network.

Author Collaboration Network

Figure 14 and Table 12 show the author collaboration network, where the nodes represent 25 authors showing their collaborations. Five clusters got formed using 25 authors by default. Cluster 1 on the top right shows the collaboration between four authors: Seridoido, Shim, Xiao, and Tang. Cluster 2 on the left shows the collaboration

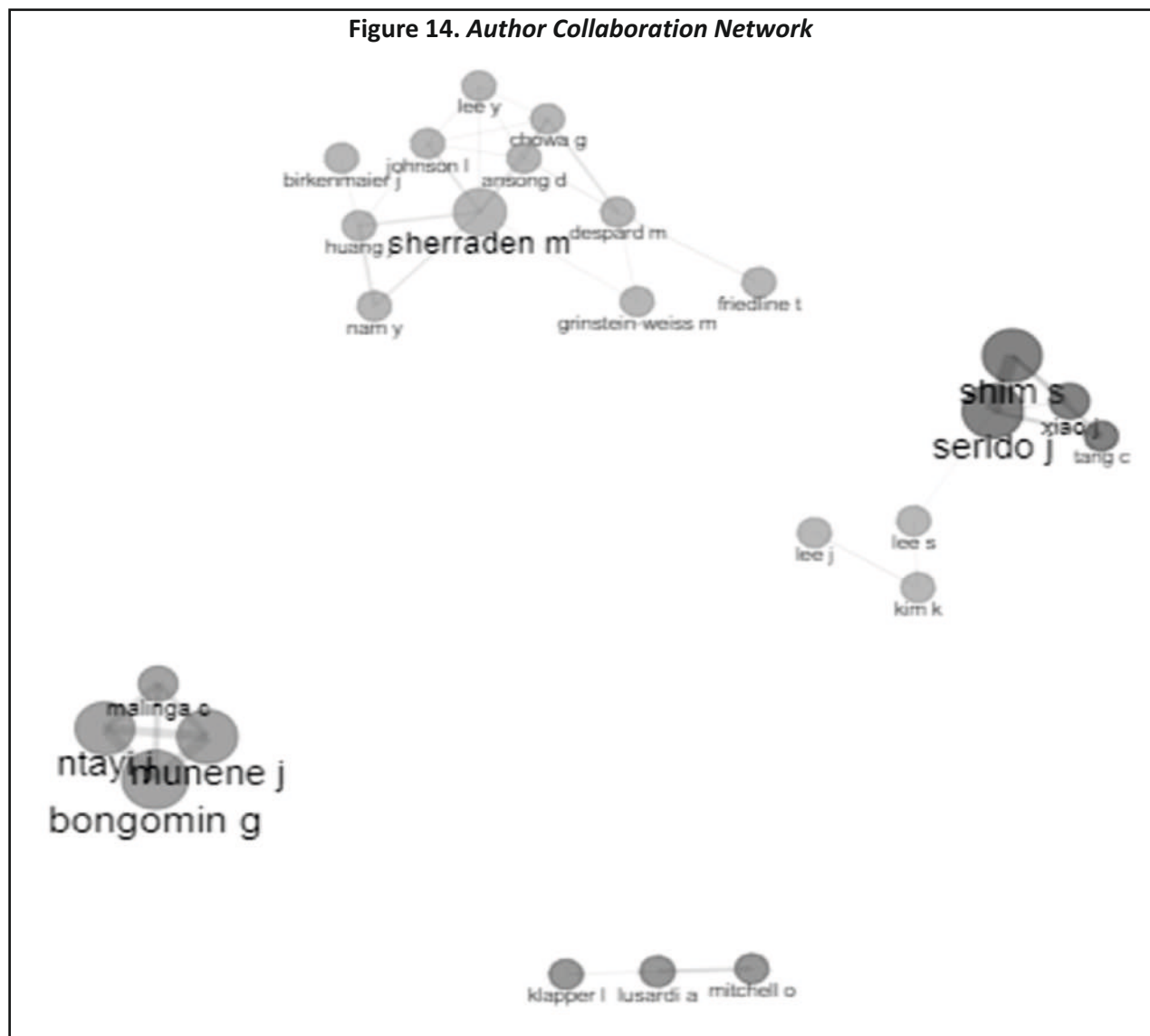


Table 12. Author Collaboration Network

Node	Cluster
Serido, Shim, Xiao, & Tang	1
Bongomin, Munene, Ntayi, & Malinga	2
Lee, Kim, & Lee	3
Lusardi, Mitchell, & Klapper	4
Sherraden, Despard, Friedline, Grinstein-Weiss, Huang, Birkenmaier, Chowa, Nam, Ansong, Johnson, & Lee	5

between the authors: Bongomin, Munene, Ntayi, and Malinga. Cluster 3 on the lower right shows the collaboration between Lee, Kim, and Lee. Cluster 4 on the bottom shows the collaboration of authors, namely, Lusardi, Mitchell, and Klapper. The last and the largest cluster, Cluster 5 on the top, shows the collaboration between the authors Sherraden, Despard, Friedline, Grinstein-Weiss, Huang, Birkenmaier, Chowa, Nam, Ansong, Johnson, and Lee.

Countries' Collaboration Network

Figure 15 and Table 13 show the Countries' Collaboration Network, formed using 50 countries by default, where five clusters are formed. The top right is Cluster 1, where it can be seen that there is a collaboration between researchers from Malaysia, Nigeria, Indonesia, Pakistan, and Saudi Arabia. On the left, which is Cluster 2, we can observe the collaboration between researchers from the United Kingdom, China, Australia, Spain, Italy, Japan, Vietnam, New Zealand, Bangladesh, Thailand, Hungary, and Denmark. Cluster 2 indicates that the United Kingdom has a major collaboration with researchers from European countries and Asian countries. Cluster 3 is the bottom right cluster showing the collaboration between researchers from the USA, India, South Africa, Canada, Brazil, Uganda, Ghana, Singapore, Korea, Kenya, Colombia, Chile, Israel, and Argentina. Researchers from the USA mainly collaborate with researchers in North American, South American, and Asian countries. Cluster 4 at the bottom shows the collaboration between researchers from the Netherlands, France, Belgium, Poland, Sweden, Switzerland, Finland, Mexico, Russia, the Czech Republic, Norway, Ukraine, Ireland, Slovakia, and Tunisia. Cluster 4 mainly represents the collaboration of researchers from European countries and highlights that researchers from Mexico mainly collaborate with researchers from European countries. Cluster 5 at the top is the smallest cluster showing collaboration between researchers from three countries: Portugal, Turkey, and Romania.

Table 13. Countries' Collaboration Network

Node	Cluster
Malaysia, Nigeria, Indonesia, Pakistan, Saudi Arabia	1
United Kingdom, China, Australia, Spain, Germany, Italy, Japan, Vietnam, New Zealand, Bangladesh, Thailand, Hungary, Denmark	2
USA, India, South Africa, Canada, Brazil, Uganda, Ghana, Singapore, Korea, Kenya, Colombia, Chile, Israel, Argentina	3
Netherlands, France, Belgium, Poland, Sweden, Switzerland, Finland, Mexico, Russia, Czech Republic, Norway, Ukraine, Ireland, Slovakia, Tunisia	4
Portugal, Turkey, Romania	5

Figure 15. Countries' Collaboration Network



Conclusion

This research provides an overview of bibliometric analysis of the area of study FI and FL from 1984 – 2022 for Scopus and WOS datasets, using Biblioshiny through R studio. The study's objectives include analyzing the bibliometric information of the field FI and FL involving the identification of annual scientific production, the most relevant and most cited journals, authors, documents, countries, current trends, and future scope of research in this field.

An analysis of the results reveals that the annual scientific production started increasing in 2006, with the highest number of articles and papers published in 2020, totaling 471 published articles. The most relevant journal is the *Journal of Consumer Affairs*, which has the highest number of published documents and citations. Joyce Serido is the author with the highest number of publications, and Lusardi got the maximum number of citations.

From geography-wise contribution, the USA has the maximum contribution, with the highest number of published documents, followed by India, the United Kingdom, and China. Regarding citations, the USA received the maximum number of citations, followed by the United Kingdom, China, India, and the Netherlands. The paper titled “The Economic Importance of Financial Literacy: Theory and Evidence” by Lusardi and Mitchell (2014), published in the *Journal of Economic Literature*, is the most relevant paper with the highest number of citations. Topics like “Financial Development,” “Financial Behaviour,” “Financial Planning,” “Financial Growth,” “Microfinance,” “Mobile Money,” “Fintech,” and “Financial Capability” are frequently researched in nexus with FI and FL. From 2016 – 2019, research focused mainly on themes and topics like financial indicators, economic factors, and the impact of these factors on FI and FL, focusing on India and other developing countries. In the year 2020, the research focus shifted to digitalization and fintech. This phenomenon indicates that the future trend of research will be on digitalization and the fintech era focusing on growth factors and financial sustainability. These research results are significant as they facilitate an understanding of the changing dynamics of FI and FL.

Managerial and Theoretical Implications

The results of this research will be significant. Financial inclusion acts as an empowerment tool that aids in increasing financial access and better financial decision making. As FI is an enabler for sustainable development goals (UN Capital Development Fund, 2023), our research will help explore more into the areas of sustainable financial inclusion, which can guide policymakers and institutions in designing policies, financial products, and services toward sustainable development.

Limitations of the Study and Scope for Further Research

Data extracted from Scopus and Web of Science database is considered in this study, restricting our analysis to only journal papers, with English as the publication language. Only one determinant of financial inclusion, that is, financial literacy, is considered for the study. Future research can include studies considering multiple databases, document sources, and languages, taking more determinants for FI. Factors like information and communication technology (ICT), digital financial inclusion (Kame Babilla, 2023), institutional framework and practices (Kebede et al., 2023; Niankara, 2023), fintech, and blockchains (Liu et al., 2023), which are significant in the current time, can act as important determinants for FI in the future.

Authors' Contribution

Both the authors, Careen Mary Khongwir and Dr. Sharmiladevi J.C., conceived the idea for this research and laid out the study design. Careen Khongwir extracted research papers from the database, filtered these based on inclusion and exclusion criteria, generated concepts and codes relevant to the study design, prepared the initial draft, and incorporated the suggested corrections. Dr. Sharmiladevi J.C. verified the methodology and analysis, supervised the study, fine-tuned it, and enhanced the manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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