

Future Research Direction of Financial Inclusion: Bibliometric Analysis



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Abstract

This bibliometric study aims to analyze the evolution of publications related to the topic of financial inclusion using R Studio and Vosviewer software. Data were extracted from the Scopus database and subjected to a set of exclusion and inclusion criteria. The results indicated a significant increase in the number of publications in the field. Authors Wang X and Munene JC topped the list of most prolific authors in the subject. India played a prominent role in enriching the topic with 453 publications. The International Journal of Social Economics was identified as one of the most important sources for research on the related topics. Financial inclusion, financial services, financial literacy, and financial technology were among the most frequently appearing keywords in the related publications. These keywords are considered crucial hot topics for future research. This study helps researchers identify various research gaps that can be addressed in future studies.

Keywords

Financial inclusion;
Bibliometric analysis;
Biblioshiny;
Scopus database;
R Studio;
Vosviewer.

الكلمات المفتاحية

الشمول المالي؛
التحليل البيبليومتري؛
بيبلوشين؛
قاعدة بيانات سكوبس؛
آر ستوديو؛
فيوسيفيور.

اتجاه البحث المستقبلي للشمول المالي: تحليل بيبليومتري ملخص

تهدف هذه الدراسة البيبليومترية إلى تحليل تطور المنشورات المتعلقة بموضوع الشمول المالي باستخدام برنامجي R Studio و VOSviewer. تم استخراج البيانات من قاعدة بيانات Scopus وإخضاعها لمجموعة من معايير الاستبعاد والتضمين. أشارت النتائج إلى وجود زيادة كبيرة في عدد المنشورات المتعلقة بالمجال. تصدر المؤلفون Wang X و Munene JC قائمة المؤلفين الرواد في نفس الموضوع، كما لعبت الهند دورًا بارزًا في إثراء الموضوع بـ 453 منشورات. تم تحديد المجلة الدولية للاقتصاد الاجتماعي كواحدة من أهم مصادر البحث حول الموضوعات ذات الصلة. كانت الشمول المالي والخدمات المالية ومحو الأمية المالية والتكنولوجيا المالية من بين أكثر الكلمات الرئيسية الظاهرة في المنشورات ذات الصلة. تعتبر هذه الكلمات الرئيسية بمثابة مواضيع ساخنة للبحوث المستقبلية. تساعد نتائج هذه الدراسة الباحثين في تحديد الفجوات البحثية المختلفة التي يمكن معالجتها في الدراسات المستقبلية.

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Doi:

I- Introduction :

The study of financial inclusion has attracted the interest of many researchers in recent years, with research on the topic proliferating extensively. Financial inclusion has gained significant importance due to its contribution to providing equal economic opportunities for all participants in the economy (Sarma & Pais, 2011). According to Ozili (2021), the reasons for the growing interest in the topic can be attributed to four factors, considering financial inclusion as a key strategy used to achieve sustainable development goals, its role in improving social integration, reducing poverty levels, and yielding numerous social and economic benefits.

Many authors support the potential of financial inclusion to foster economic growth and prosperity, reduce poverty, and combat gender inequality (A. Ali et al., 2023; Sang, 2023; Tandon et al., 2023; Yanina & Uriarte, 2023). Sang (2023) argues that everyone should have access to reliable and affordable financial services, which he considers as one of the most important objectives of financial inclusion development. The reason behind the limited access to financial services, according to Mushtaq et al. (2023), is attributed to the scarcity of private financial resources for deposit and savings, lack of information related to financial markets, or a limited supply of financial products and services.

On the other hand, Grohmann et al. (2018) argue that the importance of financial inclusion is not limited to the use of the financial system and access to financial services but extends to appropriate financial culture. Yanina and Uriarte (2023) add that improving financial literacy plays a beneficial role in enhancing financial inclusion.

Definitions of financial inclusion vary from one author to another, but most of them focus on providing access to financial services at minimal cost and suitable timing for their users. The World Bank defines financial inclusion as "the ability to access appropriate and well-regulated financial services and use them by adults to meet their needs and improve their lives" (Hess et al., 2021). This definition aligns with that of Thomas and Hedrick-Wong (2019), who consider financial inclusion as a process that ensures access, availability, and effective use of formal financial system and services by a group of people such as academics, society, and members of the economy.

In 2024, Gera et al. Conducted a recent study titled "A bibliometric and systematic review of the impacts and applications of artificial intelligence and financial technology for financial inclusion." The researchers relied on bibliometric analysis using R Studio programming, focusing their study on 42 publications extracted from the Scopus database. They attempted to link the impacts and applications of artificial intelligence and financial technology, recommending the expansion of knowledge in the field beyond the topic of financial inclusion.

Many studies on financial inclusion and financial literacy have received significant attention. In this context, Khongwir and Sharmiladevi (2023) relied on 2836 data points extracted from a mix of Web of Science and Scopus databases during the period between 1984 and 2022 and conducted a bibliometric study on the same topic. Similarly, some researchers focused specifically on financial inclusion and financial literacy for women, such as Sundarasan et al. (2023), who reviewed 312 articles extracted from the Web of Science database covering the period from 1998 to 2022. Among the key findings highlighted by the researchers at the end of the study is the potential impact of financial technology on women's financial literacy in increasing financial inclusion and bridging the digital gender gap. Another bibliometric study on women's financial inclusion, conducted by Mushtaq et al. (2023), also focused on VOSviewer software, highlighting gender gaps in financial inclusion and suggesting broad areas for future research such as sustainable development and the impact of values and ethics on consumption and production. This study is not much different from the study by Yanina and Uriarte (2023).

In the same context, Aziz et al. (2021) relied on content analysis of 126 articles related to the field of digital banking services and financial inclusion. The articles for this study were extracted from several databases such as Google Scholar, Science Direct, and ResearchGate. The authors supported the idea of digital banking services contributing to transparency of services and emphasized the need to use complex encryption methods to reduce the volume of cybercrimes. Sang (2023) suggests that using bibliometric analysis tools can help researchers learn new things about financial inclusion.

Differences in the focus of time periods and programs used by researchers in conducting similar studies distinguish this study from others in terms of temporal and spatial aspects. To the best of our knowledge, no bibliometric study has been conducted on the topic in North African countries, making our study one of the first to address the subject in the region. This study combines two programs for bibliometric analysis and measurement : R Studio and VOSviewer. The aim of this study is to explore the current status of scientific research in the field of financial inclusion by presenting the most important research outputs related to financial inclusion, highlighting the most prolific authors, countries, and relevant journals, as well as providing insights into various research gaps that can be addressed as research topics in the future. This was done by conducting a bibliometric analysis on 2079 data points extracted from the Scopus database as of January 20th, 2024.

The research paper is structured into four sections. The first section includes an introduction containing the study background, relevant previous studies, and the proposed research aspects. The second section encompasses the adopted research methodology, data collection methods, and the main software used to achieve the desired results. The third section discusses the most significant findings and research gaps. Finally, the study concludes with the study limitations and key recommendations that researchers can consider in future similar research studies.

II– Data and Methodology:

This type of analysis has been widely and frequently used by researchers in recent years. It has the ability to deal with large quantities of scientific data (Donthu et al., 2021). In our study, we applied the VOSviewer software (N. Van Eck & Waltman, 2010) for its capability to explore authorships, co-citations, and common citation links, along with bibliographic couplings in one of the following three visualizations : Overlay Visualization, Network Visualization, or Density Visualization (Arruda et al., 2022). Additionally, we relied on R Studio software with a focus on applying Biblioshiny (Aria & Cuccurullo, 2017) for its ability to provide a range of statistical techniques and conceptual mapping for the study area (Thangavel & Chandra, 2023).

The Scopus database was relied upon due to its vast coverage compared to other databases such as Web of Science (Khudzari et al., 2018). This database covers over 24,600 active peer-reviewed journals, 194,000 books, and 1.4 billion cited references starting from 1970 (Anwar et al., 2021). We focused our research scope on the title and/or abstract and/or keywords using the search identifier "financial inclusion." The study sample was selected based on several stages. We excluded the year 2024 from the research scope due to incompleteness. We obtained a total of 4,384 publications distributed among books, conferences, book chapters, and other types of sources. After focusing the research scope on the fields of Economics, Econometrics and Finance, and Business, Management and Accounting due to their direct relevance, the total publications amounted to 2,737. This number further reduced to a total of 2,079 publications after selecting only articles. The dataset was uploaded in BibTeX format to R Studio using the Biblioshiny application, and it was also uploaded in CSV format to VOSviewer to display the key results and bibliometric maps related to the topic. Additionally, MS Excel was used to present the most relevant tables related to the topic.

The figure below illustrates the most important exclusion and inclusion criteria for the sample relied upon in the bibliometric study.

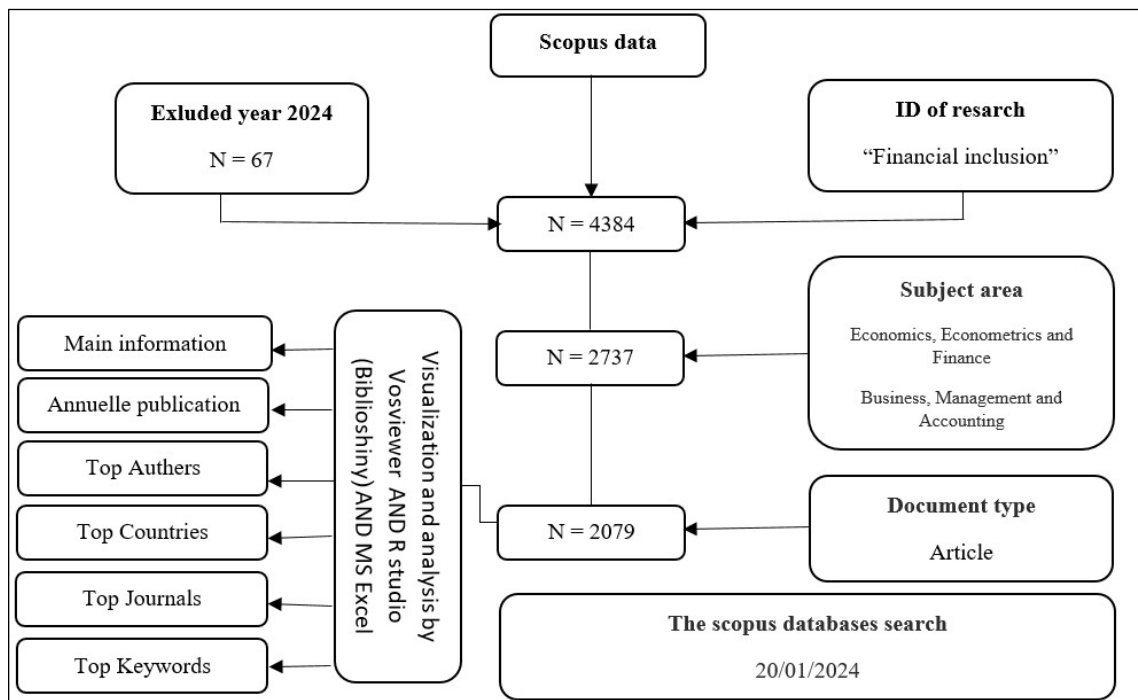


Figure 1: Steps of data extraction

III- Results and discussion :

The dataset extracted from the Scopus database was analyzed using the following software: MS Excel, R Studio, and VOSviewer. The final number of publications on the topic of financial inclusion was 2079. Initially, we noted an increase in the annual number of publications on the topic. Subsequently, we identified the most influential authors, countries, and journals related to the topic of financial inclusion. Finally, we concluded the study by analyzing the most used keywords by authors and the most frequently appearing ones, which can be considered as research gaps for those interested in writing in the field in future studies.

III- 1 Key Information:

Using Biblishiny, the key information related to the study topic was presented. The total number of publications relevant to the bibliometric study on financial inclusion extracted from the Scopus database is 2079 publications. These publications vary between books, chapters, and articles. The annual growth rate of these publications is estimated at 39.56% starting from the year 2004. The number of authors for these publications was 4086 authors, including 345 single-authored publications. The average citation per document was 3.73. The rate of co-authorship among authors was 2.57, and the rate of co-authorship among countries was 26.71%.

Table 01: Key Information

Timespan	2004:2023	Average citations per document	14,12
Sources (Journals, Books, etc)	605	Authors	4086
Documents	2059	Authors of single-authored docs	345
Annual Growth Rate %	39,56	Co-Authors per Doc	2,57
Document Average Age	3,73	International co-authorships %	26,71

III- 2 Evolution of annual publications on financial inclusion:

Figure 02 illustrates the significant increase in the number of publications related to financial inclusion over a period of nineteen years from 2004 to 2023. The period from 2004 to 2010 was characterized by stagnation in the publishing process, which could be attributed to researchers' limited interest in publishing in the field under study. However, the number of published articles gradually increased thereafter, reaching 263 publications in 2021. It is highly expected that the volume of publications related to financial inclusion will continue to increase in future periods. The following figure demonstrates the annual evolution of publications related to the study topic.

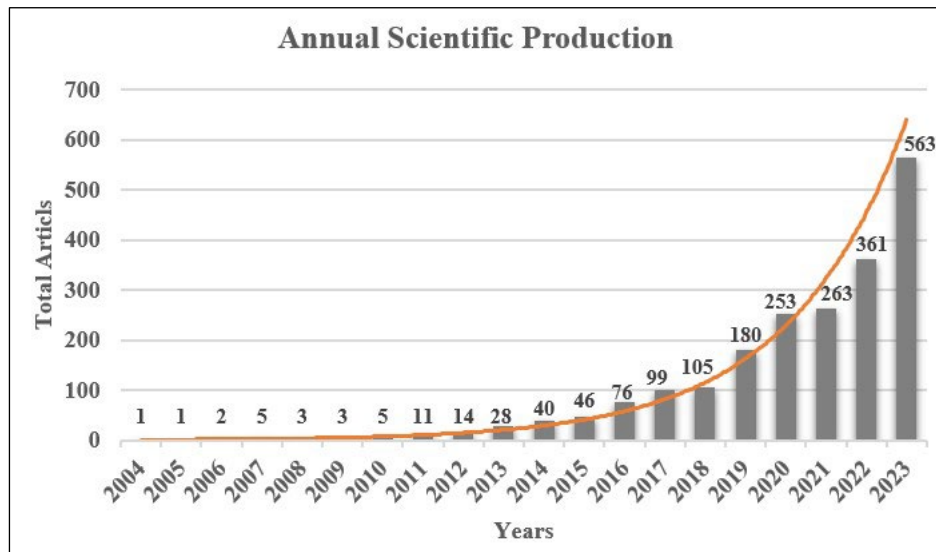


Figure 02 : Evolution of Annual Publications on Financial Inclusion

III- 3 Analysis of the Most Productive Authors:

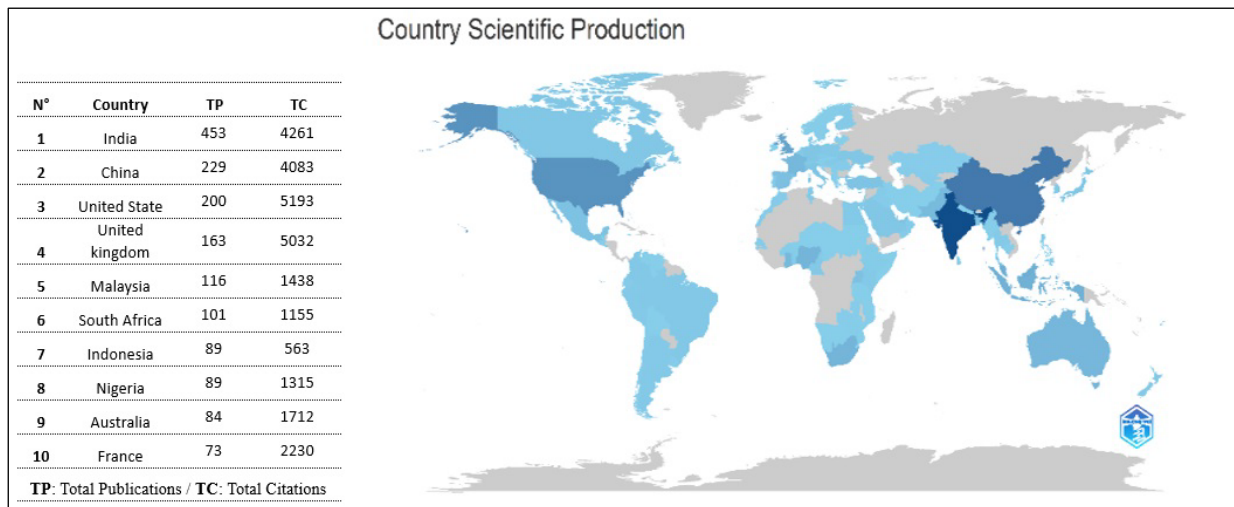
This type of analysis provides insight for researchers interested in collaborating with the most prolific authors in the field. The most recent authors in publishing in the most productive Scopus database, who have had a significant role in enriching the topic of financial inclusion, are as follows: Wang X (TP= 16; TC= 490; PY Start = 2017), Munene JC (TP= 12; TC= 172; PY Start = 2016) and Ntayi JM (TP= 10; TC= 185; PY Start = 2016). The following table presents the top ten authors specialized in publishing in the field of financial inclusion.

Table 02: Most Productive Authors

N°	Author	TP	TC	PY – Start
1	Wang X	16	490	2017
2	Ghosh S	16	248	2014
3	Munene JC	12	172	2016
4	Ntayi JM	10	185	2016
5	Koomson I	10	282	2020
6	Banna H	9	201	2020
7	Okello Candiya	9	131	2016
8	Bongomin Goc	8	101	2016
9	Klapper L	6	1027	2013
10	Lee CC	6	231	2020
TP: Total Publications / TC: Total Citations / PY – Start: Publication year start				

III- 4 Analysis of the Most Productive Countries:

India topped the list of the most productive countries in research on financial inclusion, with 453 publications and 4261 citations, compared to other countries. The increasing interest of the country in publishing in this field can be attributed to its distinctive economic and social environment according to Sang (2023). Many countries have contributed significantly to both publishing and total citations. China published 229 papers and received 4086 citations, while the United States published 200 papers and received 5193 citations. In the map shown below, India is represented by the darkest shade of blue, China by a medium shade of blue, and the United States by the lightest shade of blue. It is noteworthy that the intensity of the blue color of each country increases with the increase in the number of its publications. The other top countries in research productivity on the topic are displayed in the following figure.

**Figure 03: Most Productive Countries**

III- 5 Analysis of the Most Productive Journals:

In our analysis, we note that the larger the volume of research from specialized journals in a particular field, the better the performance of these studies. For instance, The International Journal of Social Economics published 59 papers, making it the top-ranked journal. Following closely is the Cogent Economics and Finance journal with 38 publications, followed by the Economic and Political Weekly and the Journal of Risk and Financial Management, each have 32 publications.

This type of analysis provides an overview for researchers regarding the reference sources in the field. The following figure presents the top ten journals specializing and focused on financial inclusion.

Table 03: Most Frequently Used Keywords

Rank	Keywords for Authors	Occurrences	TLS	Rank	Keywords for Authors	Occurrences	TLS
1	Financial Inclusion	1362	2551	11	Digital Financial Inclusion	73	114
2	Financial Services	132	461	12	Economic Development	64	263
3	Financial Literacy	129	229	13	Mobile Money	64	196
4	Fintech	127	245	14	Financial Market	63	256
5	Finance	126	554	15	Financial Development	62	190
6	Microfinance	118	245	16	Innovation	52	212
7	Economic Growth	115	366	17	Sustainable Development	48	206
8	Financial System	105	473	18	Financial Stability	47	89
9	Banking	100	357	19	Income Inequality	37	89
10	Poverty	76	220	20	Social Inclusion	35	149
TP: Total Publications / TC: Total Citation / TLS: Total Link Strength							

IV- Conclusion:

The study relied on bibliometric analysis to explore and discuss the most important scientific topics related to financial inclusion. This was done based on 2079 articles extracted from the Scopus database as of January 20, 2024, covering the period from 2004 to 2023. The study focused on presenting the most important research outputs related to the topic over the specified period, in addition to highlighting the most influential authors, countries, and sources interested in publishing on the subject, along with analyzing the most common keywords in the field.

The study revealed a significant increase in the number of publications related to financial inclusion over a period of 21 years, with 263 publications recorded in 2023. However, the period from 2004 to 2010 was characterized by a significant publishing recession due to researchers' limited interest in publishing in the field. It is expected that the volume of research related to financial inclusion will continue to increase in future periods.

Wang X published 16 articles, while Munene JC published 12 articles, with these publications receiving a considerable number of citations, 490 and 172 citations respectively. These authors can be considered pioneers in the field of publishing articles related to financial inclusion. The results confirm the significant role of India in enriching research on financial inclusion, as it topped the list of the most productive countries with 453 publications and 4261 citations. The reason behind India's increasing interest in publishing in the field can be attributed to the country's economic and social environment, and the difficulty in accessing financial services due to the majority of its citizens not having bank accounts, as indicated by Sang (2023).

Publications authored by the United States and the United Kingdom also received the highest number of citations (5193 and 5032 citations respectively), indicating the increasing total citations are due to the quality of the research produced.

Regarding the most relevant journals on the subject, the study found that the International Journal of Social Economics is the most productive in publishing research on financial inclusion, with 59 publications.

Several interesting subtopics have been identified for future exploration by researchers, including financial services, financial technology, and financial literacy.

It has been observed that there is a significant lack of publication from developing countries on this topic. Therefore, this study encourages researchers from these countries to contribute to the field by focusing on vital areas in inclusive research that can be addressed in future studies. The findings of this study assist academics and policymakers in understanding the current and future research landscape regarding financial inclusion and identifying key entities and reference sources interested in publishing in this field, and with the best research topics.

This study is subject to several research constraints that may affect the visibility of its results for researchers. Other authors can bibliometric analysis indicators and other search identifiers to improve the presented results. This study was limited to analyzing data extracted from the Scopus database only, due to its wide usage by researchers, especially in bibliometric studies. Researchers can also use other databases such as Web of Science and Dimensions.

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