



FinTech, Financial Inclusion, and Economic Development: A Bibliometric Mapping of the Global Research Landscape

Omobolanle Korede Oluwalana¹, David Agyemfra Atakora², Stephen Alaba John³

¹ Researcher, Department of Finance, University of Lagos, Temple University, Nigeria.

Email: koluwalana@unilag.edu.ng

² Actuarial Analyst, Department of Statistics, Montana State University, USA.

Email: dave.agyemfra.a@gmail.com

³ Lecturer, Department of Banking and Finance, University of Ibadan, Ibadan, Nigeria.

Email: stephenalaba.j@gmail.com

ARTICLE INFO

Article History:

Received: December 14, 2025
Revised: March 12, 2026
Accepted: March 16, 2026
Available Online: March 23, 2026

Keywords:

Fintech
Financial Inclusion
Digital Finance
Economic Development
Economic Growth
Bibliometric Analysis
Science Mapping
Biblioshiny

JEL Classification Codes:

G32, G33, G34, G35

Funding:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

ABSTRACT

Financial technology (FinTech) has emerged as a critical enabler for expanding access to formal financial services and for connecting digital transformation to other development outcomes. This study visualizes the knowledge landscape of FinTech, financial inclusion, and economic development on a global level based on 212 Web of Science records from 2020 to 2026. A bibliometric design with performance analysis and science mapping was applied in Biblioshiny/Bibliometrix, with complementary interpretation of country productivity, citation impact, source influence, Bradford source concentration, keyword co-occurrence, thematic mapping and trend topics, multiple correspondence analysis, three-field linkages, and co-citation structure. The publication trajectory reveals a significant rise from 2020 (two records) to 2025 (82 records) followed by a lower number of records for 2026 (due to incomplete publication year). China is the leader in terms of scientific publications and influence, with India, Pakistan, Malaysia, the United Kingdom and the United States also in the limelight. The source base is organized both in journals related to sustainability and in journals related to finance, reflecting a highly interdisciplinary literature. The keyword and thematic analyses reveal that financial inclusion and FinTech are the basic organizing concepts, digital finance, sustainable development, innovation, access, and economic growth are the principal connecting themes. Thematic mapping also reveals an environmental-development area of emissions, renewable energy and panel data which suggests that the field is not just about access anymore, but sustainability and macro-development issues. The study provides a refreshed post-2020 map of the FinTech-financial inclusion-development nexus and pinpoints areas of potential future research related to digital inequalities, causal development impacts, institutional quality, vulnerable groups, responsible AI-enabled finance, and cross-country comparability.



© 2026 The Authors, Published by iRASD. This is an Open Access Article under the Creative Common Attribution Non-Commercial 4.0

Corresponding Author's Email: stephenalaba.j@gmail.com

Citation: Oluwalana, O. K., Atakora, D. A., & John, S. A. (2026). FinTech, Financial Inclusion, and Economic Development: A Bibliometric Mapping of the Global Research Landscape. *IRASD Journal of Economics*, 8(1), 01–17. <https://doi.org/10.52131/irasd-joe.2026.v8i1.3270>

1. Introduction

Digitalization is impacting the architecture of financial systems by transforming financial service production and delivery of payments, savings, credit, insurance, investment and information. FinTech takes this transformation one step further by integrating digital platforms, data-driven processes, mobile technologies and new organizational models to lower transaction costs and access to financial services. This transformation is particularly important in developing and emerging economies, where traditional financial systems are not always well developed and where significant portions of the population are still not part of the financial system. Previous conceptual studies highlighted the benefits and risks of digital finance, and empirical research more connected digital financial services to access, inclusion, inequality, entrepreneurship, and development outcomes (Gomber, Koch, & Siering, 2017; Morgan, 2022; Ozili, 2018) .

The importance of financial inclusion lies in its potential to facilitate savings, consumption smoothing, investment, enterprise creation, and shock resilience, by providing access to useful and affordable formal financial services. Mobile money, app banking, e-payments, non-traditional credit scoring and platform finance have offered potential new routes for previously unserved people and companies to connect to the formal financial system. In addition, cross-country evidence reveals that digital financial inclusion is not uniform, and there are significant variations in terms of infrastructure, regulation, digital literacy, income, Khera, Ng, Ogawa, and Sahay (2022) reported that digital financial inclusion exhibited significant improvement in several emerging and developing economies, but mentioned regional variations in digital financial inclusion indicators. In the same vein, Morgan (2022) stated that FinTech can contribute to inclusion but that the impact of FinTech is contingent upon the institutional and policy context of digital service provision.

The relationship between FinTech and development is thus not mechanical one. Increased digital access can help to promote economic participation, although this may not be achieved equally, and could exist alongside new patterns of exclusion. Research has thus shifted from a question of whether technology will increase access to one of who will access, how and what the results will be for inequality, poverty, growth, financial stability and sustainability. Demir (2022) revealed that there is a heterogeneous link between FinTech, financial inclusion and income inequality; in turn, Tchamyu, Erreygers, and Cassimon (2019) showed that I&C could interact with financial access in determining distributional outcomes. The resulting developments have created a disjointed yet fast-growing interdisciplinary field of literature in finance, development economics, information systems, sustainability, environmental studies, and public policy.

The usefulness of bibliometric analysis is being enhanced by this swift growth. Bibliometric methods offer a structured approach that allows for the intellectual, conceptual and social organization of a large research field to be identified through the combination of performance indicators and science-mapping techniques (Donthu, Kumar, Mukherjee, Pandey, & Lim, 2021; Zupic & Čater, 2015). Bibliometrix and its interface Biblioshiny allows for reproducible analysis of citation structures, author and source influence, co-word relations, conceptual structures and thematic evolution (Aria & Cuccurullo, 2017). These approaches can uncover trends in an interdisciplinary area like FinTech-enabled financial inclusion that might not be apparent in a narrative review.

There have been a number of recent reviews that have covered FinTech and financial inclusion. In this regard, Afjal (2023) utilized a wide Scopus-based corpus of digital financial services, financial access, and economic development spanning the years 2010 to 2023. Recent research has provided a review of FinTech-financial inclusion research based on either systematic or bibliometric or hybrid approaches, including that which focuses on the overall

landscape of financial inclusion and the contribution of new financial technologies (Care, 2025; Ha, Le, & Nguyen, 2025; Kesavan & Polisetty, 2025) . These studies validate the maturity of the topic but also bring a need for more strictly defined analyses which differentiate the specific intersection between FinTech, financial inclusion and financial development/growth from the vast body of literature on digital financial services.

The present study attempts to fill this gap by using a specific and narrow Boolean query in the Web of Science Core Collection and focusing on the post-2020 research landscape. This more restricted version is designed for work that presents a combination of FinTech or digital finance, financial inclusion, and economic development/growth. The study aims for four objectives: (1) to characterize the growth and publication structure of this research stream; (2) to identify the most influential countries, institutions, authors and sources; (3) to map the conceptual and intellectual structure of the field through co-word, thematic, and co-citation analysis; and (4) to develop forward-looking research agenda from the thematic positions and gaps identified. In doing so, this study will offer a targeted snapshot of the state of the FinTech-inclusion-development nexus in a time of accelerated digital payments, post-pandemic digitalization in the financial sector, and policy attention to sustainable and inclusive growth.

2. Methodology

2.1. Research Design and Database Selection

The study applied bibliometric review design with a two-phase of performance analysis and science mapping. The publication volume, citation influence, prominent countries, institutions, authors, and sources were characterized by performance analysis. Co-word analysis, thematic mapping, trend topics, multiple correspondence analysis (MCA), three-field linkages, co-citation analysis, and Bradford-type source concentration were used to examine the organization and evolution of the field through science mapping and structural diagnostics. This combination is in line with the existing bibliometric advices to use descriptive indicators and relational mapping in addition to using only rank (Donthu et al., 2021; Zupic & Čater, 2015).

Web of Science (WoS) was chosen as the bibliographic source as it provides uniform and machine-readable bibliographic data for authors, affiliations, references, keywords, and source information that can be used by Bibliometrix/Biblioshiny. The provided export has been identified as data from Clarivate Analytics Web of Science and an export date of 29 August 2026 was provided. This search was done for publications from 2020–2026 and resulted in a total of 212 records in the analytical corpus.

Table 1
Search Strategy and Eligibility Protocol

Component	Specification
Database	Web of Science Core Collection (Clarivate Analytics)
Search string	("FinTech" OR "financial technology" OR "digital finance") AND "financial inclusion" AND ("economic development" OR "economic growth" OR "inclusive growth")
Time span represented in corpus	2020-2026
Language	English (212/212 records)
Export date in WoS file	29 August 2026
Analytical sample	212 records in the supplied Biblioshiny corpus
Software/approach	Bibliometrix/Biblioshiny; performance analysis and science mapping
Core analyses	Annual production; country production and citation impact; affiliations; source and author impact; local h-index; Bradford source concentration; keyword frequency; thematic map; trend topics; co-word network; multiple correspondence analysis; three-field plot; co-citation network

The identification and screening process was reported in a PRISMA 2020 style flow diagram that was adapted for bibliometric metadata analysis. PRISMA is a reporting guideline for systematic reviews and, therefore, its use here is restricted to transparent documentation of the search and selection process, and not to complete intervention-review processes (Page et al., 2021). PRISMA-S principles were also used as a reporting reference for making the literature search reproducible (Rethlefsen et al., 2021). Due to the fact that the provided Biblioshiny analysis used the entire WoS corpus of 212 records, the main flow diagram is presented as an exact copy of the analysis.

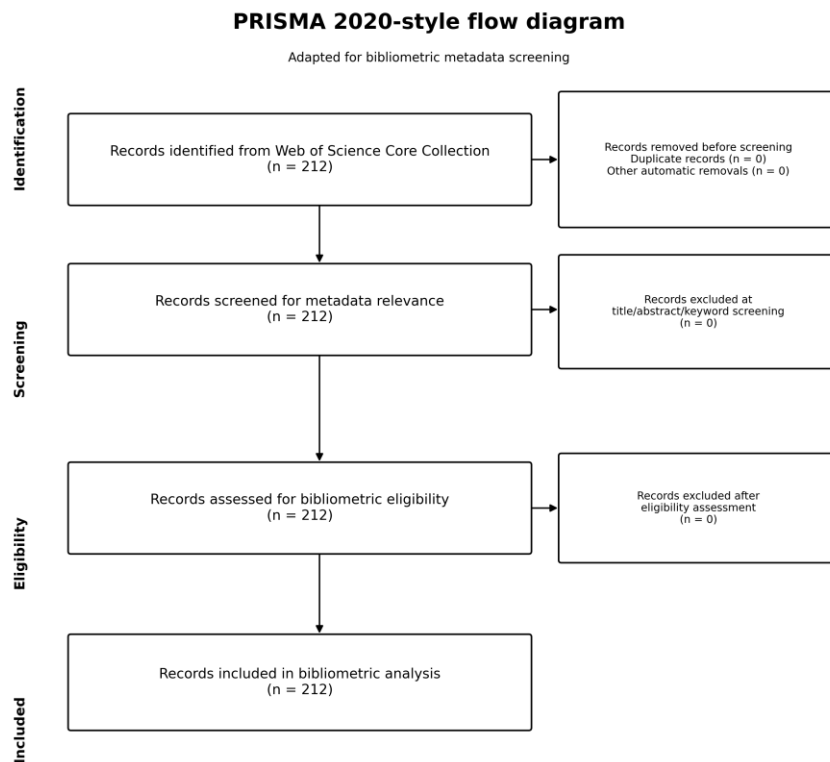


Figure 1: PRISMA 2020-Style Flow Diagram for The Current 212-Record Bibliometric Corpus

2.2. Data preparation and bibliometric indicators

Before the manuscript preparation, record-level consistency of the WoS export was examined. There are 212 unique WoS accession numbers and 212 unique titles, which means there are no duplicate records in the export. The language of all records is English. Journal articles, reviews, early-access records, conference proceedings and a few records identified by WoS as retracted publications are included in the dataset. The present manuscript reproduces the results provided in the Biblioshiny from the complete 212-record corpus, thus guaranteeing the internal consistency of all figures and statistics.

Both global and local citation perspectives were used in the analysis. Global number of citations reflects citation received within the entire WoS space, while local number of citations reflects influence within the analyzed set of citations. Sources and authors serving as intellectual anchors within the FinTech-financial inclusion-development research domain were identified using local impact and local h-indices. Keyword analysis used a combination of author-supplied keywords and database-generated terms as appropriate. Thematic mapping involved interpretive analysis of clusters according to centrality and density, while trend-topic

analysis followed the temporal trajectory of the most prominent terms, and MCA explored conceptual proximity of the keywords in a reduced dimensional space. The three-field plot and co-citation network linked cited references, active authors, keywords and shared intellectual foundations and Bradford's Law were used descriptively to assess source concentration.

Table 2
Main Information About the Bibliometric Corpus

Indicator	Value
Documents	212
Sources	132
Time span	2020-2026
Languages	English: 212 (100%)
Unique authors	641
Author appearances	670
Single-authored documents	23
Average co-authors per document	3.16
Total cited-reference entries	14,690
Total global citations (TC)	4,740
Average citations per document	22.36
Unique author-keyword terms	755
Unique Keywords Plus terms	337
Document types	Articles 181; Reviews 12; Article/Early Access 9; Proceedings Papers 6; Article/Retracted Publication 3; Review/Early Access 1

3. Results

3.1. Growth of Scientific Production

The annual production pattern indicates that literature began as a tiny emerging stream in 2020 and is growing quickly by mid-decade. The corpus contains 2 records in 2020, 10 in 2021, 27 in 2022, 35 in 2023, 40 in 2024, and 82 in 2025. The growth is especially noticeable since 2021 when the broader acceleration of digital payments, mobile finance and digital-service consumption after the COVID-19 phase has been seen. The output of 2025 is over double that of 2024, and 41 times that of 2020, suggesting a significant rise in scholarly engagement.

The apparent fall to 16 records in 2026 should not be interpreted as a contraction of the field because the WoS export was made on 29 August 2026 and the year is incomplete. For trend interpretation, 2025 is therefore the last complete publication year in the dataset. The growth pattern supports the view that the FinTech-financial inclusion-development nexus is still expanding and that the literature has not yet reached a stable publication plateau.

3.2. Geographic and Institutional Structure

The geographic distribution is highly uneven. China is the most visible country in both scientific production and citation impact. The country-production dataset records a frequency of 162 for China, followed by India (70), Pakistan (29), Malaysia (18), the United States (18), Australia (15), Vietnam (15), the United Kingdom (12), Indonesia (11), and Saudi Arabia (11). The map still indicates that there was extensive engagement in Asia, Europe, Africa, North America and Oceania, indicating the topic has truly gone global despite the primary source of publications being Asian economies.

Citation influence is even more focused. China leads with 2283 citations, followed by the United Kingdom (579), India (246), Malaysia (204) and the United States (139). Other countries among the top ten cited include the United Emirates, Japan, South Africa, Spain and France. The pattern indicates that the field is not simply led by high-income financial centers;

emerging economies with rapid digital-finance adoption and large financially excluded populations are also central sites of influential research.

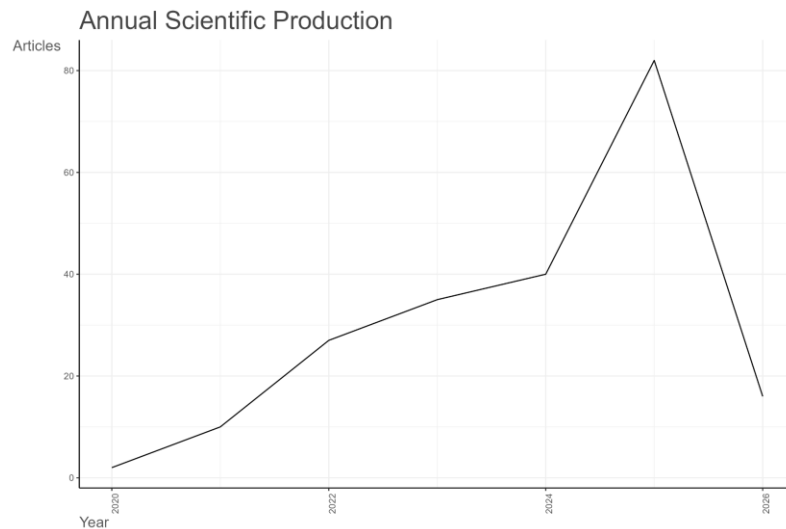


Figure 2: Annual Scientific Production, 2020-2026. Note: 2026 Is A Partial Year

Table 3
Annual Publication Output

Year	Documents
2020	2
2021	10
2022	27
2023	35
2024	40
2025	82
2026*	16

*2026 is incomplete because the WoS data were exported on 29 August 2026.

Country Scientific Production

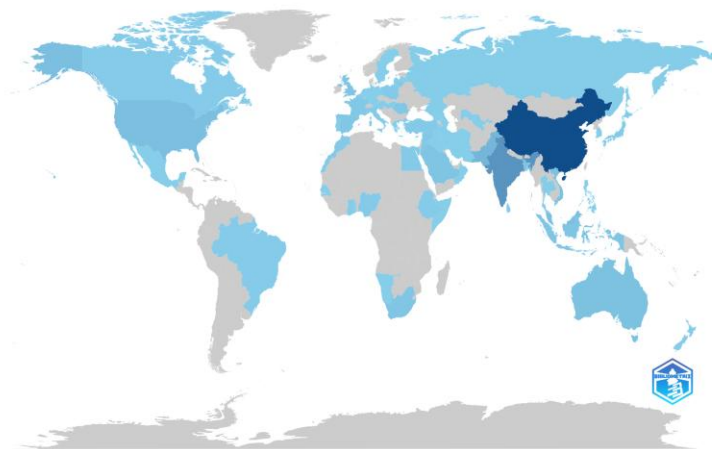


Figure 3. Country Scientific Production in The Fintech-Financial Inclusion-Development Literature

In terms of institutional productivity, Guangzhou University leads with 6 articles, Symbiosis International University has 5, followed by Andhra University with 3 articles. Four institutions contribute a total of 4 records – Maulana Azad National Institute of Technology

Bhopal, Nanjing Agricultural University, National Institute of Technology system, Renmin University of China, Universiti Utara Malaysia, University of International Business and Economics, Vietnam Academy of Finance. The fact that the institutional output is quite spread out, suggests that it is not dominated by one university cluster, but spread out over the various research systems in Asia, and some outside as well.

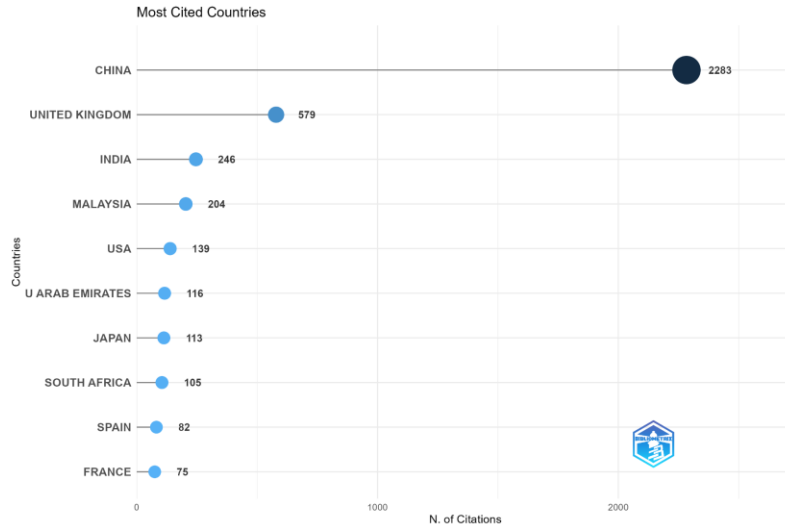


Figure 4: Most Cited Countries in The Analyzed Corpus

Table 4

Leading Countries by Production Frequency and Citation Influence

Rank	Production country	Frequency	Rank	Most cited country	Citations
1	China	162	1	China	2,283
2	India	70	2	United Kingdom	579
3	Pakistan	29	3	India	246
4	Malaysia	18	4	Malaysia	204
5	USA	18	5	USA	139
6	Australia	15	6	United Arab Emirates	116
7	Vietnam	15	7	Japan	113
8	United Kingdom	12	8	South Africa	105
9	Indonesia	11	9	Spain	82
10	Saudi Arabia	11	10	France	75

3.3. Influential Sources and Authors

Source-level evidence is used to support the interdisciplinary nature of the field. Sustainability is the most cited source locally (353 citations) and the highest local h-index ($h = 9$). Environmental Science and Pollution Research (187 local citations) and Technological Forecasting and Social Change (186) are closely following, and Resources Policy (160), Finance Research Letters (158), Journal of Cleaner Production (145), World Development (126), Energy Economics (120), American Economic Review (110), and Journal of Banking & Finance (104) are also among the important intellectual sources. These three types of journals, sustainability, environmental and economics and finance, coexist, reflecting that the research stream has moved beyond banking access, to questions of green development, energy, inequality and macro-economic performance.

As the local h-index gives a complementary perspective of source influence by giving credit to sources that have multiple locally cited papers instead of one paper with many citations. The top is sustainability with a large margin ($h = 9$), then Sustainable Development

($h = 5$). $h = 4$ in Discover Sustainability, Environmental Science and Pollution Research, Finance Research Letters, International Review of Financial Analysis and Resources Policy, $h = 3$ in Applied Economics, Frontiers in Environmental Science and Heliyon. The pattern confirms that the field is anchored jointly in sustainability, environmental, and finance/economics outlets.

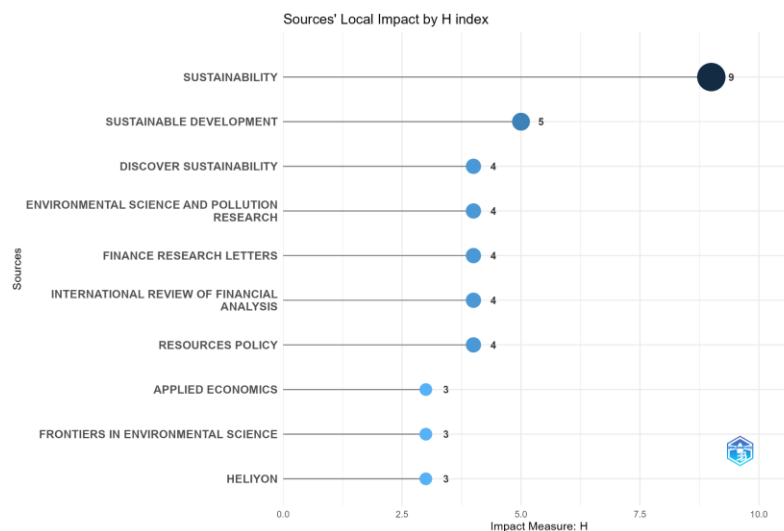


Figure 5: Sources' Local Impact Measured by the H-Index

Bradford's Law further clarifies the concentration of publication outlets. The supplied analysis divides the 132 sources into a 15-source core, 47 sources in Zone 2, and 70 sources in Zone 3, with a Bradford multiplier of 2.31. The log-linear fit is high ($R^2 = 0.9325$), indicating a pronounced concentration of articles in a relatively small source core. However, the Kolmogorov-Smirnov result ($p = 0.0255$) suggests a statistically detectable departure from a strict Bradford distribution, so the result is best interpreted as evidence of source concentration rather than exact conformity to the law.

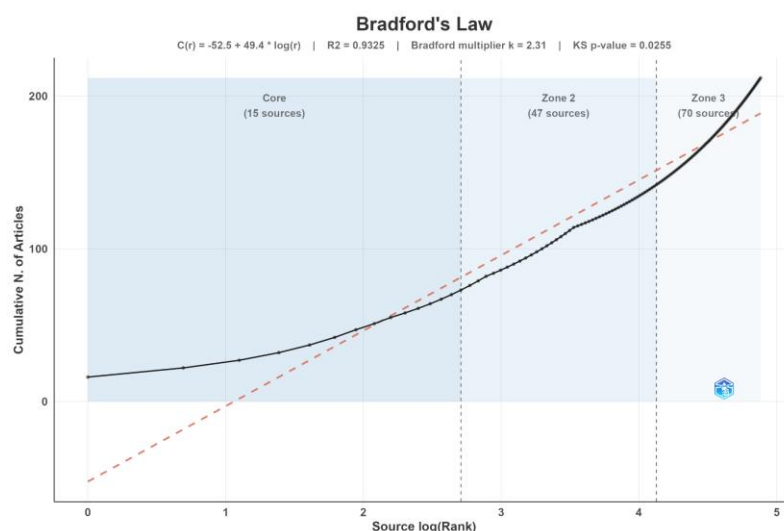


Figure 6: Bradford's Law and Source Concentration Across The 132 Publication Outlets

The local author-citation pattern is strongly shaped by the influential study of Demir, Pesqué-Cela, Altunbas, and Murinde on FinTech, financial inclusion, and income inequality. Altunbas, Demir, Murinde, and Pesqué-Cela each receive 39 local citations in the corpus. Peter

J. Morgan follows with 11 local citations, while Appiah-Otoo, Emara, and Song receive nine each. This concentration shows that a relatively small set of conceptual and empirical papers has provided a common foundation for the recent literature, particularly around inequality, development effects, and the regional diffusion of digital finance.

Table 5
Leading Sources and Affiliations

Panel A: Most locally cited sources	Local citations	Panel B: Most relevant affiliations	Articles
Sustainability	353	Guangzhou University	6
Environmental Science and Pollution Research	187	Symbiosis International University	5
Technological Forecasting and Social Change	186	Maulana Azad National Institute of Technology Bhopal	4
Resources Policy	160	Nanjing Agricultural University	4
Finance Research Letters	158	National Institute of Technology (NIT system)	4
Journal of Cleaner Production	145	Renmin University of China	4
World Development	126	Universiti Utara Malaysia	4
Energy Economics	120	University of International Business and Economics	4
American Economic Review	110	Vietnam Academy of Finance	4
Journal of Banking & Finance	104	Beijing Technology and Business University	3

3.4. Conceptual Structure: Keywords, Co-Word Relations, and Thematic Map

The structure of the keywords has a well-defined conceptual center. Financial inclusion is the most frequent term with 90 occurrences, followed by FinTech (83). The terms economic growth appear 53 times, digital financial inclusion 40 times, impact 34 times, digital finance 33 times, economic growth 31 times, innovation 23 times, growth 20 times, and access 17 times. The two figures (hyphenated and non-hyphenated) for economic growth are used because of differences in indexing and differences in standardizing the key words and do not represent material differences in the concept. The overall profile of frequencies suggests that the literature is centered on the relationship between DFIT, access to finance, and macro- or development-level outcomes.

The co-occurrence network divides the field into three general conceptual communities. The first is an access-and-inclusion cluster focused on financial inclusion and FinTech, linked to mobile banking, services, access, poverty, gender and adoption. The second is a development-performance cluster that connects economy, digital finance, innovation and institutions, and performance. The third is a sustainability-focused cluster that ties digital financial inclusion with environment and sustainable-development issues. The strong cross-cluster connections indicate that these themes are not static and that financial technology is increasingly seen as a tool that can facilitate the link between financial inclusion and other economic and sustainability impacts.

The thematic map offers a more strategic perspective of maturity & importance. The motor theme is digital finance, growth and sustainable development – the cluster is quite central to the field and developed internally. The quadrant basic theme shows financial inclusion, FinTech and economic growth, which are highly central and very broad and heterogeneous. Services, access and mobile money also emerge as basic themes and continue to be important organizing concepts for empirical work. The cluster of performance, ICT and inequality is in the emerging-or-declining quadrant; it is more readily attributed to an emerging domain than one which is declining in relevance, particularly in the context of recent policy interest in digital divides and inequality. There are specialized methodological or application-

specific sub streams, such as regression, emissions and GMM, determinants, mobile banking and information.

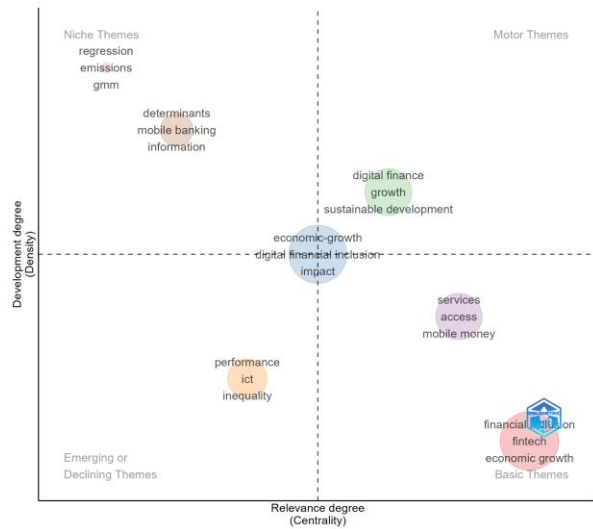


Figure 7: Thematic Map Of the Research Field

The trend-topic analysis extends the thematic map in the temporal dimension. The most consistent high frequency theme across the observed period is financial inclusion, and from 2023 onwards it is FinTech and economic growth that stand out. By 2025, economic growth, sustainable development, and financial literacy appear among the most recent visible topics. This movement indicates that the field is shifting from an earlier emphasis on access, poverty, and mobile finance toward questions about development outcomes, sustainability, and the capabilities required to use digital financial services effectively.

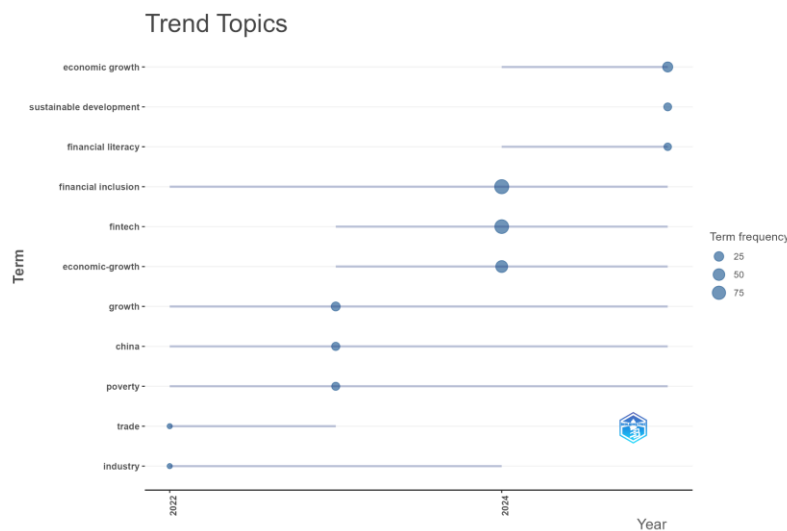


Figure 8: Trend Topics and Temporal Evolution of Major Research Terms

The MCA conceptual-structure map reinforces the co-word results while revealing the relative proximity of specific themes. The first two dimensions explain 30.48% and 15.37% of the mapped inertia, respectively. Core terms such as financial inclusion, FinTech, digital finance, innovation, and economic growth occupy the central region and therefore act as bridges across thematic areas. The right-hand side is more strongly associated with sustainability and macro-environmental research, including energy consumption, CO2/carbon

growth papers. This multi-layered intellectual structure may account for the fact that recent literature includes both micro-level studies of adoption, and macro-level analyses of growth, inequality, carbon emissions, energy use and institutional quality.

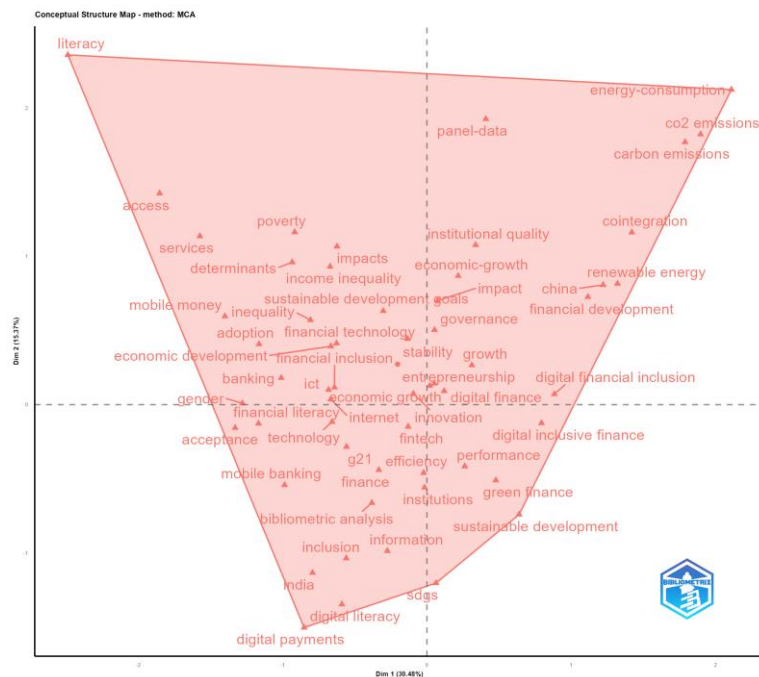


Figure 10: Multiple Correspondence Analysis (MCA) Map of the Conceptual Structure

Table 7
Thematic-map Interpretation and Future Research Implications

Thematic position	Representative terms	Interpretation	Research opportunity
Motor themes	digital growth; finance; sustainable development	Central and relatively developed	Causal links between digital finance, productivity, sustainability, and inclusive growth
Basic themes	financial inclusion; FinTech; economic growth; services; access; mobile money	Highly central but broad	Comparative models that distinguish access, usage, quality, affordability, and welfare outcomes
Emerging/declining themes	performance; ICT; inequality	Low density and lower centrality	Digital divide, gender, rural/urban inequality, firm-level performance, and vulnerable groups
Niche themes	regression; emissions; GMM; determinants; mobile banking; information	Specialized and internally developed	Methodological diversification, environmental channels, and context-specific adoption mechanisms

The three-field plot combines the intellectual and conceptual structure, including cited references (CR), active authors (AU), and merged keywords. The most powerful currents are towards financial inclusion, FinTech, economic-growth, digital finance, and digital financial inclusion. The foundational references on financial development, inclusion, and digital finance are linked to a wide cross-section of contemporary authors who, in turn, relate back to the foundational and new themes related to financial technology, mobile money, innovation, income inequality, and sustainable development, and performance. The high density of cross-

field flows suggests that the recent literature is cumulative; that is, new research builds on a common base of knowledge, rather than creating isolated silos of topics.

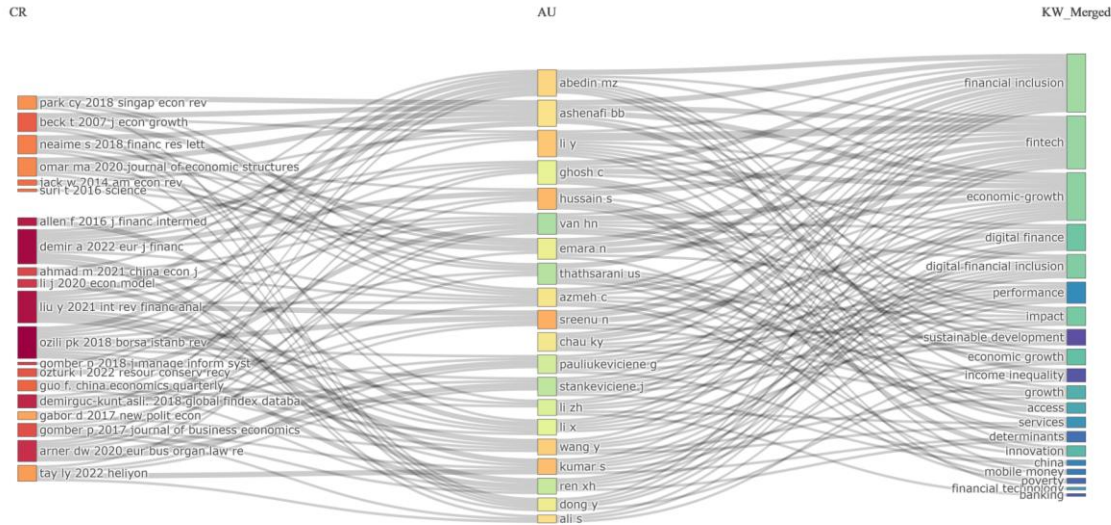


Figure 11. Three-Field Plot Linking Cited References (CR), Authors (AU), And Merged Keywords

4. Discussion

The findings illustrate an increasing movement from an access-focused FinTech conversation to a broader development and sustainability agenda. The publication output since 2021 indicates that digital finance and financial inclusion are emerging as macro-developmental themes as opposed to being purely banking or information-technology topics. This aligns with the rise of digital payments and platform finance as well as the emergence of country-level indicators that enable researchers to test linkages between digital finance, inclusion, inequality, and growth. The high contribution of the Asian countries, in particular China and India, is also indicative of the presence of large digital-finance markets, fast rates of platform diffusion, and policy interest in financial inclusion.

The superiority of China is especially notable. It leads the production-frequency data and far surpasses other countries in citation impact. This concentration can be attributed at least in part to the availability of large subnational datasets that include digital financial inclusion indices and thus make China a natural laboratory for studies of household behavior, entrepreneurship, green growth, carbon emissions and regional development. The thematic map confirms this interpretation, as environmental and sustainability issues are now near the economic-development center. Strong participation from India, Pakistan, Malaysia, South Africa and other emerging economies also indicate that this is not purely a China-centric literature, but that it is more being influenced by contexts that have to do with the co-existence of digital infrastructures and financial exclusion.

The source structure also illustrates the merging of the finance and sustainability scholarships. Sustainability is the most locally cited source, and it is also the most influential source by local h-index, other influential sources include Finance Research Letters, Resources Policy, Environmental Science and Pollution Research, Technological Forecasting and Social Change, and World Development. Bradford analysis indicates that there is a small core of 15 outlets together with a long tail of 117 outlets in Zones 2 and 3, showing there is concentration and significant disciplinary dispersion. This mix suggests that, in the future, work will probably

be even more interdisciplinary. As researchers focus more on financial inclusion, they should also consider institutional quality, technological readiness and digital literacy, environmental transition, and distributional outcomes, rather than access as the end goal.

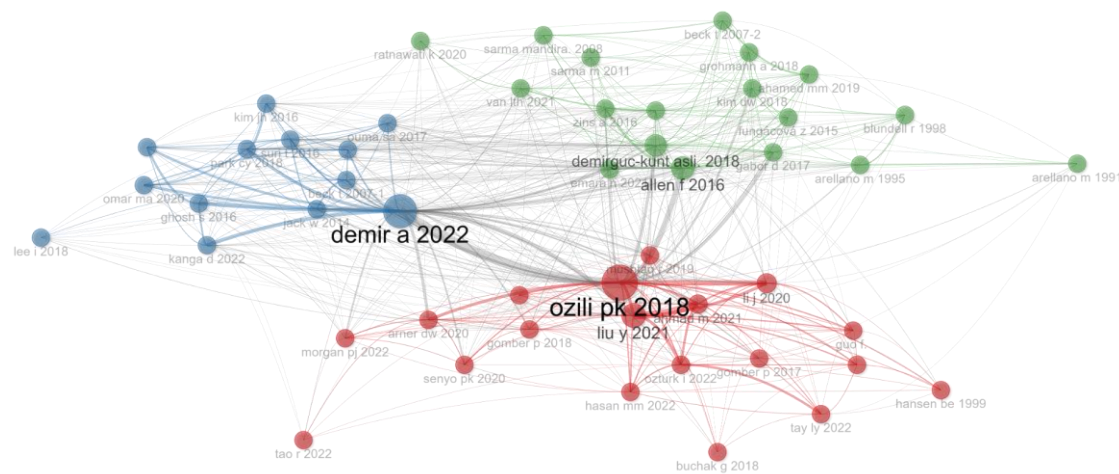


Figure 12: Co-Citation Network of the Analyzed Literature

The conceptual findings also show a significant difference between the foundational and emerging concepts. The low to moderate densities of the basic themes indicate that literature has considerable conceptual heterogeneity, while the themes themselves of financial inclusion and FinTech are central to almost every stream. The MCA map indicates that the terms in the environmental and sustainability side of the conceptual space are on a separate but related side, and trend-topic evidence reveals that the latest focus is shifting to economic growth, sustainable development, and financial literacy. Studies nonetheless apply various proxies to capture the development of FinTech, digital finance, mobile money, financial access and financial inclusion, limiting comparability across countries and methods. Digital finance, growth and sustainable development are located in a motor position, implying that the field's frontier is now more about the implications of digital financial inclusion than just determinants.

The emerging/declining role of ICT, inequality and performance should be carefully interpreted. The position does not mean that the subjects are being phased out. Rather, their lower density might indicate that published literature has yet to converge towards a shared set of theories or methods of measurement. This provides a solid foundation for research on distributional and welfare effects. Digital financial inclusion can minimize geographical and cost barriers but can also generate new barriers for participation based on device ownership, data cost, digital literacy, algorithms, language, cybersecurity risks, and differential trust. Thus, the next generation of research should focus on going beyond average effects; that is, identify the heterogeneity of effects across gender, age, income, rurality, firm size, and institutional environments.

Additionally, methodological focus is indicated in the present mapping. The terms regression, GMM and panel-data are presented as a specialized cluster, which indicates that macro-panel methods have been given prominence. Though these methods are useful, relying on large amounts of aggregate observational data may be restrictive when it comes to causal interpretation. Quasi-experimental designs, natural experiments, staggered policy adoption, difference-in-differences, and instrumental variables based on credible institutional shocks, as well as linked micro-macro data, would be useful in future research. The construction of digital-

finance indices should also be made transparent in cross-country studies, and measurement invariance in using latent constructs should be tested.

5. Research agenda and implications

First, future research should differentiate access, usage, quality, affordability and impact on welfare. An increase in account ownership or digital-payment use does not automatically lead to increased financial inclusion. Research needs to examine if digital services over time have a positive impact on savings, productive investment, risk management, enterprise survival, and/or household resilience.

Second, the issue of distributional heterogeneity should be a major focus of research. Access and benefits from digital financial services can be influenced by gender, age, education, rural location, informal employment, disability, and income. Thematic evidence on inequality and digital literacy indicates that these issues have not been well consolidated in the literature.

Third, there is a need for more causal evidence about the institutional environment in which FinTech can help development. The relationship between inclusion-development can be moderated by regulatory quality, data protection, competition policy, digital identity systems, payment interoperability, consumer protection and cybersecurity. Comparative institutional designs can be used to explain the differences in technology outcomes from country to country.

Fourth, the part of the literature dealing with the environment should be shifted from correlations to mechanisms. Digital finance has been increasingly associated with green innovation, renewable energy, carbon emissions and sustainable development. Future research should examine if such impacts occur via credit reallocation, information efficiency, household consumption, green entrepreneurship or public policy incentives.

Fifth, there is a new frontier with emerging technologies. AI tools, alternative credit scoring, open banking, embedded finance, central bank digital currencies, and tokenized payment infrastructures can be used to broaden access but can also result in the risk of opacity, discrimination, concentration of providers and exclusion. Future research on responsible innovation and the effect of algorithmic finance on inclusion, without reducing fairness, privacy or financial stability, is suggested.

The findings for policymakers suggest that a wider FinTech is not enough. As access, inequality, digital capability and institutional jargon are all key, it means that a digital infrastructure alone is not sufficient, but needs to be supported by consumer capability, regulation, trust and interoperable payment systems. The findings point to the need for common measurement frameworks that enable digital financial inclusion to be compared across countries and over time, for researchers.

6. Conclusion

This study mapped the literature of the Web of Science between FinTech, financial inclusion and economic development based on a corpus of 212 records from 2020 to 2026. The evidence reveals a growing field of research, with an increasing number of publications since 2021 and 82 in 2025. China is the predominant contributor, both in terms of scientific production and citation influence, and the geographic distribution highlights the contribution of Asia, Europe, Africa, North America and Oceania. The source-level results show that finance, sustainability, environmental studies, development economics and technology research are increasingly overlapping and have a strong interdisciplinary knowledge base. Financial inclusion and FinTech are the basic themes and remain at the conceptual level, while digital finance, growth and sustainable development is a more developed motor theme. A growing

environmental-development branch and ongoing research opportunities around inequality, ICT, performance, digital literacy and access are also identified in the co-word and thematic structures. The co-citation network also shows that the field is not dependent on a disciplinary foundation but several interrelated intellectual traditions. In general, literature has shifted from a 'does FinTech expand access?' to a more nuanced 'when, for whom and by what institutional and technological means does digital finance produce inclusive and sustainable development?'. Future research should thus focus on causal identification, multiple dimensions of inclusion, distributional heterogeneity, institutional moderators, mechanisms in the environment and the proper utilization of new financial technologies.

Authors' Contribution

Omobolanle Korede Oluwalana: Conceptualization, methodology, data collection and curation, formal analysis, and writing of the original draft.

David Agyemfra Atakora: Bibliometric analysis, software, data visualization, validation of results, and review and editing of the manuscript.

Stephen Alaba John: Supervision, interpretation of findings, critical review, manuscript editing, and final approval of the paper.

Conflict of Interests/Disclosures

The authors declared no potential conflict of interest w.r.t the research, authorship and/or publication of this article.

References

- Afjal, M. (2023). Bridging the financial divide: a bibliometric analysis on the role of digital financial services within FinTech in enhancing financial inclusion and economic development. *HUMANITIES & SOCIAL SCIENCES COMMUNICATIONS*, 10(1), 645. doi:<https://doi.org/10.1057/s41599-023-02086-y>
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of informetrics*, 11(4), 959-975. doi:<https://doi.org/10.1016/j.joi.2017.08.007>
- Care, R. B. I. A. S. A. M. F. R. (2025). Exploring the landscape of financial inclusion through the lens of financial technologies: A review. *FINANCE RESEARCH LETTERS*, 72(02), 106500. doi:<https://doi.org/10.1016/j.frl.2024.106500>
- Demir, A. P.-C. V. A. Y. M. V. (2022). Fintech, financial inclusion and income inequality: a quantile regression approach. *EUROPEAN JOURNAL OF FINANCE*, 28(1), 86-107. doi:<https://doi.org/10.1080/1351847X.2020.1772335>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of business research*, 133(09), 285-296. doi:<https://doi.org/10.1016/j.jbusres.2021.04.070>
- Gomber, P., Koch, J.-A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of business economics*, 87(5), 537-580. doi:<https://doi.org/10.1007/s11573-017-0852-x>
- Ha, D., Le, P., & Nguyen, D. K. (2025). Financial inclusion and fintech: a state-of-the-art systematic literature review: DHT Thieu et al. *Financial Innovation*, 11(1), 69. doi:<https://doi.org/10.1186/s40854-024-00741-0>
- Kesavan, V., & Polisetty, A. (2025). An extensive examination of the influence of financial technology (Fintech) on advancing financial inclusion: a bibliometric investigation. *Discover Sustainability*, 6(1), 72. doi:<https://doi.org/10.1007/s43621-025-00823-8>
- Khera, P., Ng, S., Ogawa, S., & Sahay, R. (2022). Measuring digital financial inclusion in emerging market and developing economies: A new index. *Asian Economic Policy Review*, 17(2), 213-230. doi:<https://doi.org/10.1111/aepr.12377>
- Morgan, P. J. (2022). Fintech and Financial Inclusion in Southeast Asia and India. *Asian Economic Policy Review*, 17(2), 183-208. doi:<https://doi.org/10.1111/aepr.12379>

- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa istanbul review*, 18(4), 329-340. doi: <https://doi.org/10.1016/j.bir.2017.12.003>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., . . . Brennan, S. E. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *bmj*, 372(03). doi: <https://doi.org/10.1136/bmj.n71>
- Rethlefsen, M. L., Kirtley, S., Waffenschmidt, S., Ayala, A. P., Moher, D., Page, M. J., & Koffel, J. B. (2021). PRISMA-S: an extension to the PRISMA statement for reporting literature searches in systematic reviews. *Systematic reviews*, 10(1), 39. doi: <https://doi.org/10.1186/s13643-020-01542-z>
- Tchamyou, V. S., Erreygers, G., & Cassimon, D. (2019). Inequality, ICT and financial access in Africa. *Technological forecasting and social change*, 139(02), 169-184. doi: <https://doi.org/10.1016/j.techfore.2018.11.004>
- Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational research methods*, 18(3), 429-472. doi: <https://doi.org/10.1177/1094428114562629>