Financial Inclusion in Fintech Era: A Systematic Review of Literature and Research Frontiers

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Abstract

Recent research emphasized the growth of Fintech in promoting financial inclusion, primarily through digital interventions. Scholars explore the intricate link between growth of an economy through financial technology and inclusion of each member of society, sparking a surge in academic interest. Current study conducts a systematic literature review (SLR) through Theory, Construct, Context and Method (TCCM) framework from 1980 to 2023, analysing 45 journal articles from various international perspectives. The synthesis reveals valuable insights into traditional and digital financial services, emphasizing the roles of socio-economic, technological, and policy factors. Policymakers, researchers, and practitioners stand to benefit significantly from these findings, particularly in addressing persistent gaps related to access, adoption, and trust in Fintech for financial inclusion. The study underscores the need for further research, urging exploration of non-linear effects, cross-country comparisons, and interdisciplinary approaches to deepen understanding and foster more inclusive financial systems. This research contributes to advancing financial inclusion theory and advocates for ongoing efforts to create sustainable and accessible financial environments globally.

Keywords – Financial inclusion, Fintech, digital finance, Systematic Literature Review, TCCM Framework

Introduction

Fintech, an acronym used for technological interventions in finance, is the buzz word in financial services. Fintech companies are innovative intermediaries using technology to transform business models, operations, providing services in the financial sector. Inception of Fintech dates back to the early 1990s, coinciding with the rise of the Internet. The key drivers for smooth delivery of financial services, such as transparency, accessibility and affordability, had improved substantially with internet-based infrastructure. Fintech or Financial Technology based mechanism today challenge traditional market structure by offering more efficiency and transparency in transactions. More trust in Fintech has led to introduction of innovative products by financial service providers promoting financial inclusion. Researchers have identified that affordable innovative financial products with Fintech interventions have improved inclusion efforts by enhancing accessibility. The influence of digital interventions on banking operations has also been explored by several researchers. However, the gap persists in literature review regarding Fintech and Financial Inclusion. The current study uses Systematic Literature Review (SLR) methodology to analyze published articles from 1980 to 2023 from two major sources- Scopus and Web of Sciences database. 45 Journal Articles were reviewed to get insights about financial inclusion with fintech interventions. The synthesis through Theory, Construct, Context and Method (TCCM framework) facilitated identification of sociological, technological and policy related factors shaping financial inclusion. The review also highlights the new research frontiers and contributes to advancement of financial inclusion theory. A wide range of literature from Web of Sciences and Scopus database offers fresh insights into the dynamics of Financial Inclusion in the presence of Fintech(Afjal, 2023) (Dissanayake et al. 2023) (Firmansyah et al. 2022) (Ashenafi & Dong, 2022). Drawing upon the elucidations above, the main objective of the study is to undertake aninclusive examination of scholarly contributions about fintech adoption through the utilization of the Systematic Literature Review (SLR) methodology. The following Research questions (RQ) are posited to guide this inquiry:

RQ 1: *Focus on association of Fintech and Financial Inclusion*

RQ 2: *Identify the publication trend, significant authors and journals*

RQ 3: *To highlight theories, constructs, context and method frequently used for Financial Inclusion and Fintech*

RQ4:*To identify the current gaps and potential research topics that must be addressed*

The study is divided in to sections wherefirstsectiongave introduction, describing the research's purpose, rationale, and contributions to the field of study. The subsequent section elaborates the technique and data utilized for the study followed by details related to publication trend, significant authors and Journals. Next section of the study will offer an extensive review of literature through TCCM framework followed by Research Gap and Future agenda.

Methodology:

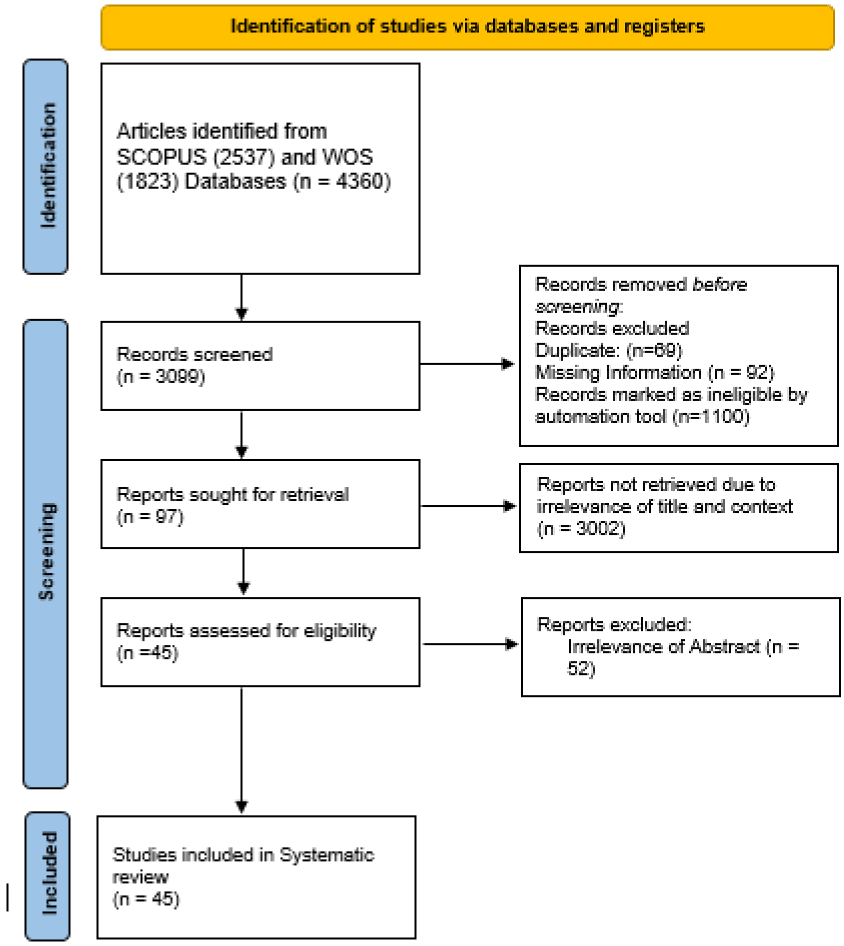
Bibliometric analysis along with Systematic Literature Review(SLR) to methodically organize perspective on the literature with a specific time frame. PRISMA known as preferred reporting items for systematic reviews and meta analyses given by Page et al (2021) was employed to systematically map and assess the literature across various domains. For analytical scrutiny documents from Web of Sciences and Scopus were categorized based on frequently used theories, constructs, countries and methodology.

Identification: The search equation used for Web of Sciences was Topic: ("Fintech* OR FinTech* OR Digital Finance*" AND "Financial Inclusion*"). The asterisk (*) was selected to encompass any cluster of characters relevant to financial inclusion and Fintech. The search was further refined for review and articles document types and restricted to English. Time frame was from 1980 to 2023. The indices used were SCI-EXPANDED, SSCI, and A&HCI. For the Scopus database, the following search equation was used: Topic: ("Fintech* OR FinTech* OR Digital Finance*" AND "Financial Inclusion*"). The asterisk (*) was selected to encompass any cluster of characters relevant to financial inclusion and Fintech.

Screening: Figure 1highlights PRISMA Framework used for screening criteria, and elucidating the methodological approach utilized to identify pertinent research materials. The assessment of documents for their inclusion for the research is carried out during the screening phase of the process.From the extensive repositories of the databases, a total of 4360 research papers that align with specific stipulated criteria, including thepublicationyear, keywords, topic, area, and language, have been identified. The initially identified documents underwent a meticulous refinement process guided by the defining characteristics.

Inclusion: Initially, ninety-seven documents were acquired through screening, signifying their relevance to our research topic. Nonetheless, due to their lack of alignment with our thematic focus, fifty-two papers were subsequently excluded from consideration, and forty-five were reviewed for the study.

Figure 1



Source: Authors' contribution

Association of Fintech and Financial Inclusion (RQ1)

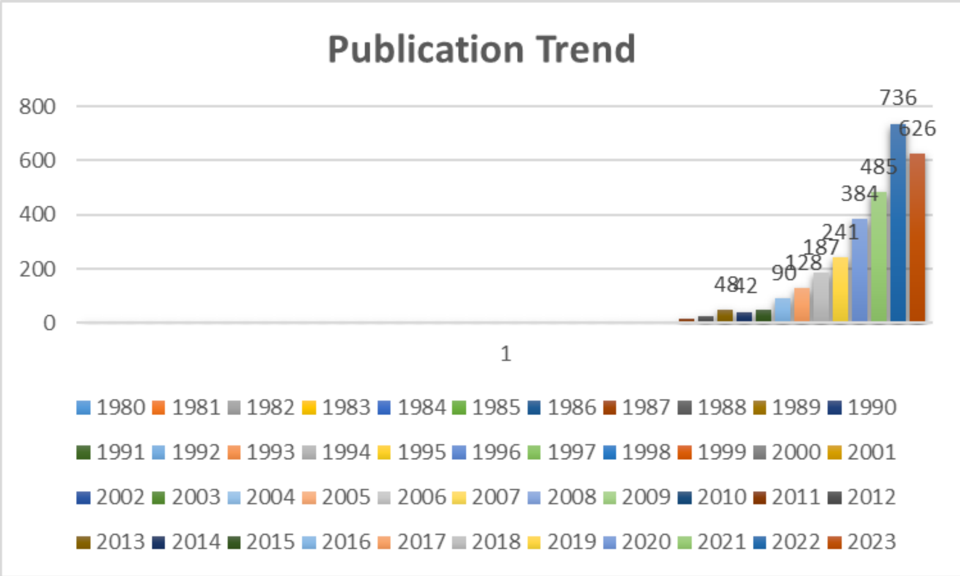
Financial inclusion is represented by access and usage of financial services by individuals and businesses at affordable cost. According to the World Bank[i], “Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way.” Fintech, short for financial technology, is the integration of technology into financial services. Fintech companies are innovative intermediaries using technology to transform business models, operations, and service delivery in the financial sector. In the quest to achieve Sustainable Development Goal, Financial Inclusion is considered as a significant enabler to achieve seven out of seventeen goals. Among account users, there is a strong demand for a wide variety of financial services. Many would like to obtain credit, insurance, and savings products. Digital financial services delivered via mobile phones offer a particularly strong potential for expanded access to and use of accounts, as well as other financial services. Some of the most exciting innovations in digital financial services are coming from Fintech, leveraging technology to provide low-cost, scalable, and innovative financial services both directly and indirectly. Much of Fintech is still uncharted territory, and commencing our understanding of its impact on financial inclusion is incredibly important for guiding how it can be nurtured to best help the poor and the unbanked.

Academic interest in fintech has surged across various disciplines, particularly in understanding its role in promoting financial inclusion. Recent research highlights the transformative potential of digital platforms in enhancing financial accessibility, as well as the relationship between financial inclusion and economic growth(Afjal, 2023) (Dissanayake et al. 2023) (Firmansyah et al. 2022) (Ashenafi & Dong, 2022). With the help of systematic literature review for the period 1980 to 2023 through the articles from diverse international contexts, facilitated insights into traditional and digital financial services' factors, strategies, and outcomes related to financial inclusion. The synthesis of the literature underscores the significance of socio-economic, technological, and policy-related factors in shaping financial inclusion and helped to establish the model impacted by Fintech interventions.

Publication Trend, Significant Authors and Journals (RQ 2)

The documents included in our study encompass journal articles published within the time frame spanning from 1980 to 2022. This timeframe underscores the relatively recent emergence of research papers concerning the role of Fintech in financial inclusion, mirroring the significant growth experienced by the fintech industry in recent years. Furthermore, as illustrated in Figure 2, there is a discernible upward trajectory in fintech research about financial inclusion, with the number of publications escalating from 485 in 2021 to 736 in 2022, indicating a substantial growth rate of 51%. Notably, the number of studies conducted in the year 2023 is anticipated to surpass the figures depicted in Figure 2, given that the data collection for this study was conducted in August 2023.

Figure 2 Publication Trend

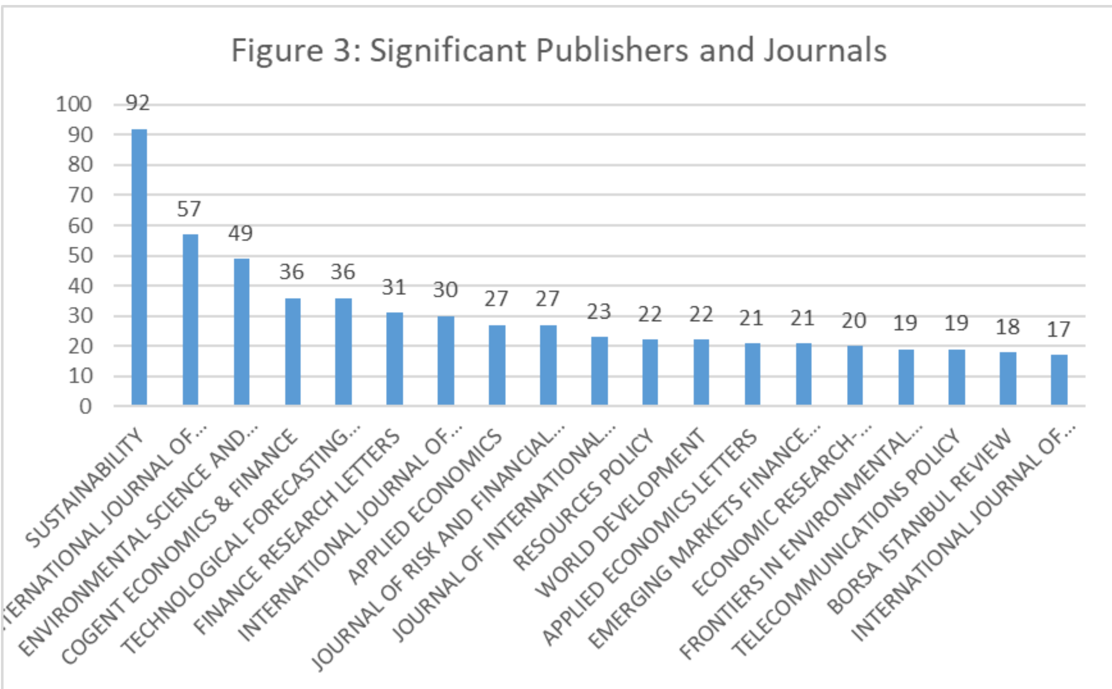


Source Authors' calculation and representation

Significant Publishers and Journals

The prominent journals and publishers extensively working in Financial inclusion and fintech are Elsevier, MDPI Springer, Taylor, and Francis groups. Technology in Society,Research in International Business and Finance, Journal of Open Innovation, and Borsa Istanbul Review, under Elsevier's banner, offer a platform for examining the societal implications of technological advancements, including Fintech's influence.

Figure 3 Significant Publishers and Journals



Source: Own elaboration based on the Scopus and WoS database

International Journal of Financial Studies, Sustainability (Switzerland), International Journal of Financial Studies, hosted on MDPI (Multidisciplinary et al. Institute), explores the risk factors associated with financial technology and digital financial services. It serves as a hub for research on the management of financial risks in Fintech. Springer, Taylor, Francis, and Wiley explore Fintech's political and economic dimensions. It often features research on digital financial services' regulatory and policy aspects. These journals and publishers are vital in advancing Fintech and digital financial inclusion research, providing a platform for scholars to share their insights, discoveries, and analyses in this evolving field.

Theories, Constructs, Context and Method frequently used for Fintech and Financial Inclusion (FI) (RQ3)

Out of the 45 documents studied, the significant observations are drawn from the most cited and relevant documents.

Theories: To explore the theoretical landscape of Fintech and Financial Inclusion some significant theories were widely used as highlighted in table 1. Technology Acceptance Model (TAM) is extensively quoted in most of the studies whereas some studies have not used any theoretical framework to describe the relationship of fintech and FI. TAM model emphasized the usage and access behaviour in the context of digital financial services offered. Economic theories underlined the consumption and utility pattern for adoption of digital financial services. Innovation theory along with agency theory was highlighted by researchers to understand the economic development in the context of different economies. Behavioural factors were tested through nudge theory to investigate the influence of fintech on financial behaviour of users (refer to table 1).

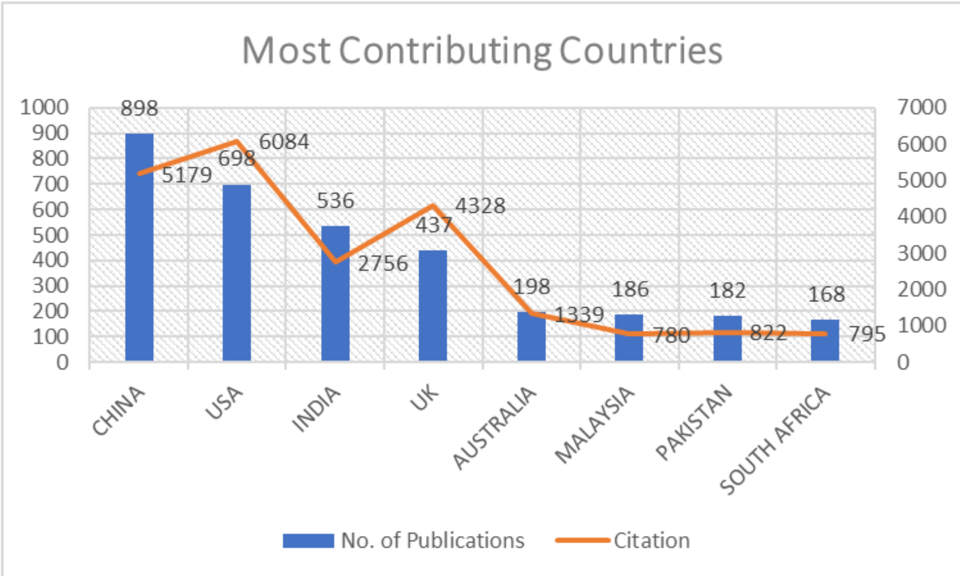
Table 1 Theoretical Framework in the context of Fintech and FI

Theory/Model	Authors
Technology Acceptance Model (TAM)	Aziz & Naima, 2021, Khera et al., 2021, Asif et al., 2023, Shen et al., 2021
Inter-temporal Economic Theory of consumption and utility, Economic Theory	Niankara & Islam, 2023, Shen et al., 2021, L. Wang et al., 2022, Ghosh, 2016
Innovation Theory, Public Good Theory, Agency Theory	Al-Smadi, 2023, Ozili, 2018
Nudge Theory, Resource Based Theory and Sustainable growth theory	Gabor & Brooks, 2017, Yang & Zhang, 2020
Unified Theory of Acceptance and Use of Technology (UTAUT), Prospect theory	Okello et al. ,2018, Senyo & Osabutey, 2020
Power parity theory of ICT4D, organization theory	Lagna & Ravishankar, 2022
Theory of Financial Inclusion and Credit risk Analysis, Moral Hazard Theory, Finance Theory	Mhlanga, 2020, Demir et al., 2022
No Theory	Gershenson et al., 2021, Ali & Ghildiyal, 2023, Gallego-Losada et al., 2023, Garg et al., 2023, Gálvez-Sánchez et al., 2021, Hasan et al., 2022, Arner et al., 2020

Source: Author's Elaboration

Context: The 45 documents under study include studies conducted on different countries, region including USA, UK, India, Bangladesh, Middle East and North Africa (MENA) region. Figure 2 shows that China, USA and India top the chart with publication 898, 698 and 536 respectively for the period 1980 to 2023. In terms of total citation USA top the chart with 6084 citations followed by China and United Kingdom. The data shows that fintech and financial inclusion (FI) have received significant attention globally and are relevant to the economic development of both developed and under developed economies. Researchers have explored regional nuances, cultural factors, socio economic conditions and regulatory framework to understand the role of Fintech interventions in FI in different contexts.

Figure 2 Most contributing countries in terms of publication and citation



Source: Author's Elaboration

Constructs: Factors affecting Fintech and FI dynamics are identified by researchers highlighting the broad spectrum of the research. The factors which generally affect FI in maximum number of studies irrespective of context include income per capita, income inequality (Demir et al , 2022), educational factors, financial service sector attributes like cost of financial services (L. Wang et al., 2022) (Garg et al., 2023). Access and usage, trust factors (Asif et al., 2023) (Senyo& Osabutey, 2020), along with digital infrastructure play a crucial role to determine the extent of financial inclusion through fintech (Gershenson et al., 2021) (Shen et al., 2021)(Gallego-Losada et al., 2023) (Al-Smadi, 2023) (Aziz & Naima, 2021. Legal aspects associated with policy framework for FI along with profitability for electronic transfers are examined by some researchers (Al-Smadi, 2023) (Gershenson et al., 2021) (Gallego-Losada et al., 2023) (L. Wang et al., 2022) (Ozili, 2018) (Arner et al., 2020) (Khera et al., 2021). These factors are broadly classified in the categories as shown in table 2 of Income level, Inflation, Socio Economic Environment, Internet Usage, Digital Finance, cybersecurity, service trust, mindset and stage of FI.

Table 2 Factors affecting Fintech and FI

S.No	Factors Identified	Reference
1	Income level	(Demir et al., 2022) (Asif et al., 2023) (Senyo & Osabutey, 2020), (Lagna & Ravishankar, 2022) (Mhlanga, 2020) (Hasan et al., 2022) (Gabor & Brooks, 2017) (Okello Candiya Bongomin et al., 2018) (Biekpe et al., 2020) (Ali & Ghildiyal, 2023)
2	Inflation	Gershenson et al., 2021) Demir et al., 2022), Ghosh, 2016
3	Socio Economic environment	Ali & Ghildiyal, 2023, Niankara & Islam, 2023, Okello Candiya Bongomin et al., 2018
4	Internet usage	Aziz & Naima, 2021, (Al-Smadi, 2023) Hasan et al., 2022, Biekpe et al., 2020
5	Digital Finance	(Gershenson et al., 2021) (Shen et al., 2021)(Gallego-Losada et al., 2023) (Al-Smadi, 2023) (Aziz & Naima, 2021).L. Wang et al., 2022) (Garg et al., 2023(Niankara & Islam, 2023) (Arner et al., 2020) (Khera et al., 2021)Khera et al., 2021, Garg et al., 2023, Gálvez-Sánchez et al., 2021, Lagna & Ravishankar, 2022
6	Cyber security	(Al-Smadi, 2023) (Gershenson et al., 2021) (Gallego-Losada et al., 2023) (L. Wang et al., 2022) (Ozili, 2018)
7	Service Trust	Asif et al., 2023, Senyo & Osabutey, 2020
8	Financial Inclusion	Shen et al., 2021, Ozili, 2018, Mhlanga, 2020, Gabor & Brooks, 2017, Arner et al., 2020L. Wang et al., 2022) (Garg et al., 2023(Niankara & Islam, 2023) (Arner et al., 2020) (Khera et al., 2021)
9	Mindset	Asif et al., 2023, Senyo & Osabutey, 2020, Ali & Ghildiyal, 2023, Gabor & Brooks, 2017,

Source: Authors' research

Method: Table 3 present the research methods and tools used by researchers prominently for fintech and financial inclusion (FI) for the examined papers. It is clearly visible that a mix of qualitative and quantitative methods are used with different analysing tools. Regression Analysis as shown in table 3 is used by significant studies to highlight the association of fintech in FI followed by structural equation modelling. Bibliometric analysis with SLR is also used by some researchers to explore trends for future research in this field. Researchers have also used generalized method of moments, spatial data techniques to assess the link between fintech interventions and FI. For qualitative studies interviews with consumers and policy makers used with discussion approach by researchers to highlight the trends in fintech and FI.

Table 3: Significant methods/tools used in fintech and FI

Authors	Method/Tools
Demir et al., 2022, Hasan et al., 2022, Gershenson et al., 2021, Okello Candiya Bongomin et al., 2018, Biekpe et al., 2020, Aziz & Naima, 2021, Ali & Ghildiyal, 2023	statistical tools-descriptive statistics, chi-square test, regression analysis- logistic regression, Probit regression, quantile regression, Tobit Model
Gallego-Losada et al., 2023, Garg et al., 2023, Gálvez-Sánchez et al., 2021, Mhlanga, 2020	Bibliometric Analysis, Systematic Literature Review
Niankara & Islam, 2023, Ghosh, 2016	Cross-Sectional Panel Data Analysis
Khera et al., 2021, Asif et al., 2023, Senyo & Osabutey, 2020	Structure Equation Modelling, statistical tools a three-stage PCA is used to construct this new measure
Shen et al., 2021, L. Wang et al., 2022	spatial data and techniques, MinDW model
Al-Smadi, 2023, Yang & Zhang, 2020	Generalized method of moments (GMM)
Ozili, 2018 , Lagna & Ravishankar, 2022, Gabor & Brooks, 2017, Arner et al., 2020	Discussion based Qualitative studies

Source: Author’s Elaboration

These observations answer our RQ 3.

Current Gaps and Potential Research Topics (RQ4)

The studies under review primarily focus on the impact of Fintech on financial inclusion (FI) in various regions like Latin America, India, Bangladesh, Spain, the UAE, the MENA region, and more. However, there needs to be more research concerning the African continent, with limited coverage in the studies under review. Exploring the dynamics of Fintech and its role in FI in different African countries or regions could be a valuable addition to the literature. Most studies use empirical methods such as regression, bibliometric, and panel data analysis to examine the association between Fintech and FI. However, more studies that delve into the qualitative aspects and the experiences of individuals and businesses using fintech services need to be conducted. Qualitative research could help provide a better perspective of the user and the challenges they face in adopting digital financial services. Our review includes studies on digital FI in a specific country or region. However, more research must be conducted to compare and contrast experiences and outcomes across multiple countries. A cross-country comparative analysis would help identify common trends, differences, and best practices in promoting digital financial inclusion on a global scale. While some studies explore the impact of ownership of mobile phones and socio-economic factors, some explore behaviour with reference to digital banking and financial services, there needs to be a research gap in understanding the role of social and cultural factors in expediting fintech adoption and its impact on FI. Cultural factors, trust, and social norms can significantly affect the adoption of fintech services.

Conclusion

The current study has examined the published work from 1980- 2023 on Fintech and Financial Inclusion (FI) to understand the future research agenda. The paper used TCCM framework to identify important concepts, constructs, countries and contributors in the field. The association of FI and fintech is identified, significant journals and countries with maximum work on the topic were explored. The systematic literature review helped the researcher to identify significant theories, methods and tools used in the context of fintech and FI(Afjal, 2023). Bibliometric analysis helped to map the new research frontiers for researchers and practitioners to focus. Diverse research methods such as statistical analysis, bibliometric analysis, and qualitative interviews highlight the Complexity of FI research(Afjal, 2023) (Dissanayake et al. 2023) (Firmansyah et al. 2022) (Ashenafi & Dong, 2022). Fintech's impact on FI is a recurring theme, with studies offering policy recommendations to enhance it. Some note limitations related to data availability and sample sizes, indicating challenges in comprehensive research. The interdisciplinary nature of FI research is evident, drawing from economics, finance, technology, sociology, and other fields. These articles provide insights into the evolving landscape, emphasizing the need for context-specific strategies, rigorous methodologies, and policy interventions to move ahead with inclusive practices globally.

The paper also has limitation for the review is done only for specific keywords and titles in the database. Also, the documents considered were only in English Language for the period from 1980-2023. Another limitation is that documents included were only from Scopus and Web of Sciences database excluding publications with other sources. Future research may include documents in different languages and from multiple databases to extend the scope of the research.

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