



Research Article

The state of financial inclusion research on developing countries

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ABSTRACT

This study proposes a research agenda on financial inclusion (FI) in developing countries based on a synthesis of the literature using a combination of structured literature review and bibliometrics. The analysis is based on 183 peer-reviewed journal articles extracted from Scopus. We found that the literature can be organized into four broad themes: (1) conceptualization and impacts of FI, (2) user perceptions and adoption, (3) role of financial innovation and private sector financial institutions, and (4) role of public institutions and public policy in FI. Further, the literature is dominated by empirical studies with little theory-focused studies. The literature is fragmented, and the evidence is mixed and contested. The social implications of FI need to be studied within specific institutional contexts and care must be exercised when applying successful models from one context to the next. The research agenda is informed by a proposed conceptual model, labelled the *financial inclusion diamond*.

1. Introduction

A significant portion of poor, vulnerable and marginalized individuals, households, groups, and communities in developing countries still do not have access to very basic formal financial services such as opening a bank account, making payments for goods and services, and making or receiving remittances (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2020). Even those who can access the financial system face hurdles using formal services for many reasons such as lack of documentation, high costs, and geographical barriers e.g., proximity to a bank branch (Beck, Demirgüç-Kunt, & Peria, 2007; Nedu Osakwe and Chukwuemezie Okeke, 2016; Stapleton, 2013). In many countries, particularly outside urban centers (e.g., rural or remote areas), formal financial services are not even available to poor, vulnerable and marginalized populations (Koomson, Villano, & Hadley, 2020). The inability to access the formal financial system, referred to as *financial exclusion* (Carbó, Gardener, & Molyneux, 2005), has had severe negative consequences on the quality of life and development opportunities of the world's poor, vulnerable and marginalized population (Banerjee and Newman, 1993; Pradhan, Arvin, Nair, Hall, & Bennett, 2021). It has been argued that greater *financial inclusion* (FI) can lead to the attainment of many developmental goals (Demirgüç-Kunt et al., 2020) such as reducing poverty and income inequality (Demir, Pesqué-Cela, Altunbas, & Murinde, 2020), improving non-monetary welfare outcomes such as improved nutrition, healthcare and education (Kabakova and Plaksenkova, 2018), promoting economic development, and achieving several

sustainability goals (Adegbite and Machethe, 2020; Chibba, 2009; Pradhan et al., 2021).

With the goal of promoting greater financial inclusion in developing countries, many international organizations, national governments, non-governmental organizations (NGOs), policymakers, and businesses around the world have enacted policies and committed significant resources to increase financial inclusion in their countries and across the globe (Beck et al., 2007). Towards this end, a key initiative is the founding of the Global Partnership for Financial Inclusion in 2010, which is a global platform developed by G20 countries interested in promoting financial inclusion in non-G20 countries through the Financial Inclusion Action Plan (GPII, n.d.; Kabakova and Plaksenkova, 2018). Also, many countries have looked to financial technologies (e.g., fintech, mobile money) as mechanisms for promoting financial inclusion among the unbanked through greater access to payments, savings, and other financial services (Ouma, Odongo, & Were, 2017; Tengeh and Gahapa Talom, 2020; Thulani, Chitakunye, & Chummun, 2014).

Despite significant global efforts, it remains unclear whether and to what extent existing policies, programs, and initiatives have fostered greater financial inclusion and generated the benefits and outcomes envisioned (Kabakova and Plaksenkova, 2018). The evidence appears to be equivocal, even contradictory and polarized, where it has been argued that financial inclusion is overly positive (Ozili, 2021; Suri, Jack, & Stoker, 2012) without considering the 'dark side' or the detrimental effects on the very people it was intended to help (Beck et al., 2007; Bernards, 2019b; Bhagat and Roderick, 2020; Burns, 2018; Suárez, 2016).

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There is considerable disagreement among scholars and policymakers regarding what aspects of financial inclusion works; where, when and how (Bara, 2013; Bateman, Duvendack, & Loubere, 2019; Beck et al., 2007; Bernardis, 2019b; Suárez, 2016). This situation has led to the characterization of financial inclusion as a “contested and contestable enterprise” (Mader, 2018 p. 2). Further, there are questions regarding the best approaches to financial inclusion – whether a universalist approach or a contextualized approach (Pozzebon, Christopoulos, & Lavoie, 2019) or some combinations of these approaches are better suited to promote financial inclusion. Policymakers still find designing and implementing effective financial inclusion policies and programs challenging given the broad range of available financial inclusion mechanisms, and the diversity of socio-political contexts and population characteristics.

In light of these challenges, there have been calls from scholars and practitioners for greater understanding of FI and existing evidence on FI, which can guide future policy and scholarly works (Ahmad, Green, & Jiang, 2020; Bateman et al., 2019; Bernardis, 2019a, 2019b; Mader, 2018; Ozili, 2021). The goal of this research is to contribute to filling the gap in the literature for a deeper and clearer understanding of existing research, particularly in the context of developing countries where the problem of financial inclusion is more acute.

Against this backdrop, we seek to summarize and structure the extant literature to promote a clearer understanding and to chart an agenda for future research. There are a couple of early studies that summarize specific aspects of the financial inclusion literature. For example, Ozili (2021) focused on how international financial inclusion practices around the world converge to a set of common practices – a focus on approaches to FI. Ozili (2021) examined both developed and developing countries. Another review examined whether fintech innovations can boost financial inclusion in Nigeria – a focus on technology (Babajide, Oluwaseye, Adedoyin, & Isibor, 2020). These reviews offer valuable insights into emerging FI efforts. Our study complements these studies in the following ways. First, we focus exclusively on developing countries where issues of financial inclusion are most acute (Suárez, 2016). Second, we analyze the broad literature, rather than specific issues, given our interest in presenting a structured synthesis of the extant literature. Third, we included only peer-reviewed articles that can be considered certified and validated (Ramos-Rodríguez and Ruíz-Navarro, 2004) and excluded books, book chapters, conference papers, book reviews, editorials, discussion papers, and reports, which are less likely to be peer-reviewed (Sassmannshausen and Volkmann, 2018). Fourth, we have not imposed restrictions on journal quality for selecting articles. Fifth, we employ a combination of structured literature review and bibliometrics, which together enable a comprehensive understanding of the literature (Ardito, Scuotto, Del Giudice, & Petruzzelli, 2019).

Our review will help researchers and practitioners gain a better understanding of what is already known about financial inclusion, how the disparate pieces fit together, what research gaps persist, and what new research opportunities exist. The results of this study can also help policymakers and practitioners gain a deeper understanding of how the many nuanced and interrelated dimensions of financial inclusion can be designed and implemented to achieve better outcomes. This study employs a structured literature review approach (Tranfield, Denyer, & Smart, 2003) complemented with bibliometric analysis using VOSviewer version 1.6.15 (Van Eck and Waltman, 2011). We identified and analyzed 183 peer-reviewed articles focusing primarily on financial inclusion in developing countries. The articles were sourced from the Scopus database, which boasts one of the largest academic collections with excellent coverage of developing countries (Aghaei et al., 2013). The VOSviewer analysis returned four clusters or themes, which are used to organize the extant literature.

The four broad themes are (1) the conceptualization and impacts of financial inclusion, (2) user perceptions and adoption of fintech and financial inclusion, (3) the role of financial innovation and private sector financial institutions, and (4) the role of public institutions and public policy in financial inclusion. Using these four thematic clusters, we

propose a new *financial inclusion diamond* framework. The financial inclusion diamond discusses the interdependencies among the various aspects of the financial inclusion ecosystem, which can be useful to guide policy and program decisions to promote financial inclusion. The framework also provides a clearer context for interpreting some of the seemingly mixed findings reported in the literature. Additionally, the *financial inclusion diamond* framework is used to identify several topics for future research. The insights from this study can help policymakers understand the efficacy of their policies and point to areas for improvements.

The remainder of this article is organized into five sections. Section 2 describes the research method employed. Section 3 discusses the findings, Section 4 outlines avenues for further research, and Section 5 presents the conclusion.

2. Methods & materials

Since the primary goal of this article is to systematically synthesize the extant literature, we utilized two techniques – systematic literature review (SLR) (Tranfield et al., 2003) and bibliometrics (Ardito et al., 2019). Both techniques have been widely employed in various disciplines to obtain comprehensive insights of a research field. SLR is a rigorous approach that produces knowledge and identifies trends, paths, and future research topics of a field (Tranfield et al., 2003). The SLR method offers a more methodical, transparent and replicable approach to identify, evaluate and interpret the available research related to a topic (Tranfield et al., 2003). Furthermore, this method is consistent with our objective of synthesizing a large body of research, identifying potential gaps and proposing a research agenda (Kitchenham et al., 2009).

Bibliometrics enables researchers to develop quantitative measures and indicators on a body of literature using bibliographic information (Van Leeuwen, 2004). Bibliometrics shows research areas with the greatest research output, the countries and the year in which research was published, the journals that publish most research, and the most relevant authors with publications on the topic (Sassmannshausen and Volkmann, 2018). VOSviewer clusters and analyzes the relationships among articles, authors, and countries through bibliographic coupling, co-citations, and co-occurrence of keywords (Van Eck and Waltman, 2011). Citation analysis is used as a measure of intellectual influence and relevance of research (Sassmannshausen and Volkmann, 2018). Co-occurrence of keywords occurs when a group of keywords co-occur in at least two different articles (Van Eck and Waltman, 2011). Clustering refers to distances between nodes, and the clusters are determined by minimizing such distances. The text mining functionality of VOSviewer provides support for creating term maps based on a corpus of documents. A term map is a two-dimensional map wherein the distance between two terms is an indication of their relatedness. In general, the smaller distances between terms indicate closer relatedness to each other. The relatedness of terms is determined based on co-occurrences in documents. Each cluster may be viewed as a topic or a theme. The SLR process followed aligns with Tranfield et al. (2003) and the bibliometrics approach is based on the method outlined by Van Eck and Waltman (2011), the creators of VOSviewer. The process and results of the SLR and bibliometrics analyses follows.

Our study followed the three-phase SLR process recommended by Tranfield et al. (2003), namely, planning the review, conducting the review and reporting the results. In the planning phase, we developed our search strategy, selected the database to source the articles, identified keywords, and established inclusion and exclusion criteria. We selected the Scopus database since it has one of the largest academic collections (Thelwall, 2018) with excellent coverage of developing countries, particularly Africa and the Middle East (Aghaei et al., 2013) – regions with tremendous amounts of financial inclusion activities. Three keywords corresponding to the primary focus of the study guided our initial search - financial inclusion, financial technology, and developing country. Keywords pertaining to financial technology, included terms such as

“fintech”, “financial technolog*” and “digital financial system”, and specific technologies such as blockchain and mobile money. Keywords related to developing country included terms such as “developing countr*”, regions such as “Sub-Saharan Africa” and specific countries such as Jamaica. To ensure rigor and geographic coverage in our search, we utilized a recent list of 166 developing countries published by the United Nations. Keywords related to financial inclusion included terms such as “financial inclus*”, “financial equity” and “financial deepening”. Only peer-reviewed journal articles written in English and focused exclusively on developing countries were included. Books, book chapters, conference papers, reviews, editorials, and lecture notes were excluded since these are less likely to be peer-reviewed (Sassmannshausen and Volkmann, 2018).

In phase two, we conducted the search, which yielded 377 unique search results. Selecting only English language journal articles resulted in 266 articles. Next, the researchers independently and systematically reviewed the titles, abstracts, keywords, and full texts of the 266 articles to determine if the articles focused exclusively on financial inclusion in developing countries. This process yielded 183 relevant articles that formed the sample corpus.

In phase three, we report the results, which are presented according to publication year, article sources, countries, article types, citation analysis, and keywords analysis.

2.1. Publication year

Fig. 1 displays the distribution of the articles by year of publication, which indicates the evolution of the scholarly discourse over time. Fig. 1 shows an exponential increase in research over the last five years. Between the 2020 and June 2021, there were 82 articles published, which represents 45 percent of the sample. This indicates that financial inclusion research on developing countries is attracting substantial interest.

2.2. Article sources

Publication outlets indicate where most of the conversations on financial inclusion in developing countries are taking place. It is observed that the 183 articles were published in 143 unique journals spanning various disciplinary focus. Table 1 shows the names and impact scores of the journals along with the number of articles appearing in each. Fig. 2 shows the bibliographic coupling of articles by sources. Bibliographic coupling occurs when an article is cited by two other articles and shows

Table 1

Top 10 journals based on number of articles represented in the final collection.

Journal Name	Impact Score	Number of Articles
Telecommunication Policy	3.51	7
Sustainability (Switzerland)	3.48	7
World Development	5.38	3
International Journal of Advanced Science and Technology	0.48 ^a	3
Information Technology for Development	4.25	3
Information Technology and People	3.53	3
Enterprise Development and Microfinance	0.31	3
Applied Economics	1.81	3
African Journal of Science, Technology, Innovation and Development	0.93	3
Technological Forecasting and Social Change	9.01	2

^a Journal has been discontinued.

the strength of subject relationship between them. Fig. 2 shows that the literature is biased heavily towards two subject areas, technology and development. It seems that scholars are heavily focused on exploring the nexus between fintech and developmental goals through financial inclusion.

2.3. Countries

Country analysis enables researchers to gauge how the literature supports the development of a scientific discourse within specific national settings (Massaro, Dumay, & Guthrie, 2016). Our analysis shows that published research on financial inclusion in developing countries is dominated by single-country studies and regional studies (a few countries within a region). Of the 183 articles, 132 (72 %) are single-country studies, 23 (13 %) focus on two or more specific countries, while 28 (15 %) are based on regions such as Sub-Saharan Africa and Asia. Single-country focused articles examined financial inclusion in a total of 28 different countries, which corresponds to 17 % of all developing countries. There is a significant concentration of the research with the top 5 most studied countries accounting for 79 articles (43.2 %). These studies are concentrated in two Asian countries and 3 African countries - India, China, Kenya, Uganda, and Ghana with 25, 18, 15, 11, and 10 articles respectively. Additionally, these single-country articles spanned 3 continents - Africa (64 articles), Asia (64 articles) and Europe (4 articles). The four European countries are Lithuania, Ukraine, North Macedonia, and Republic of Tajikistan.

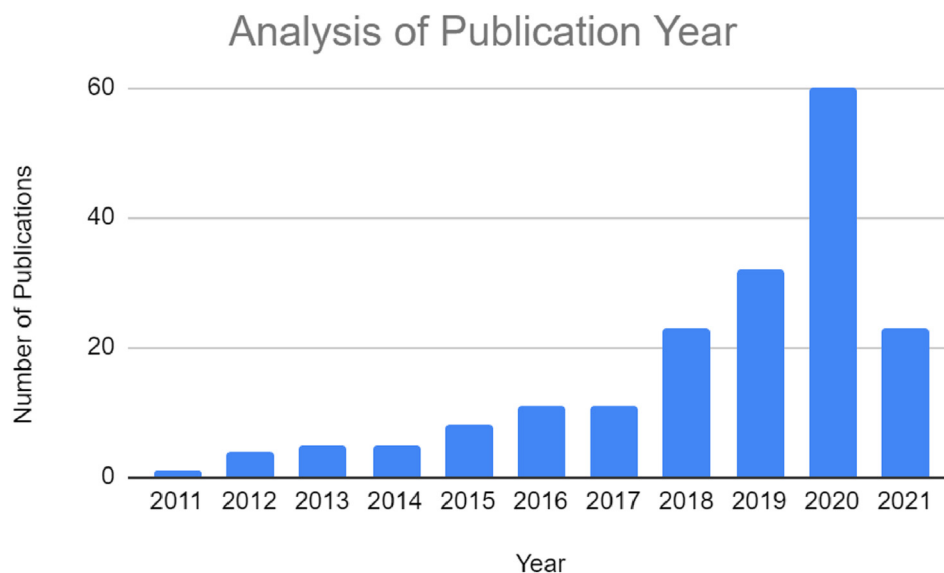


Fig. 1. Distribution of articles by year of publication (n = 183).

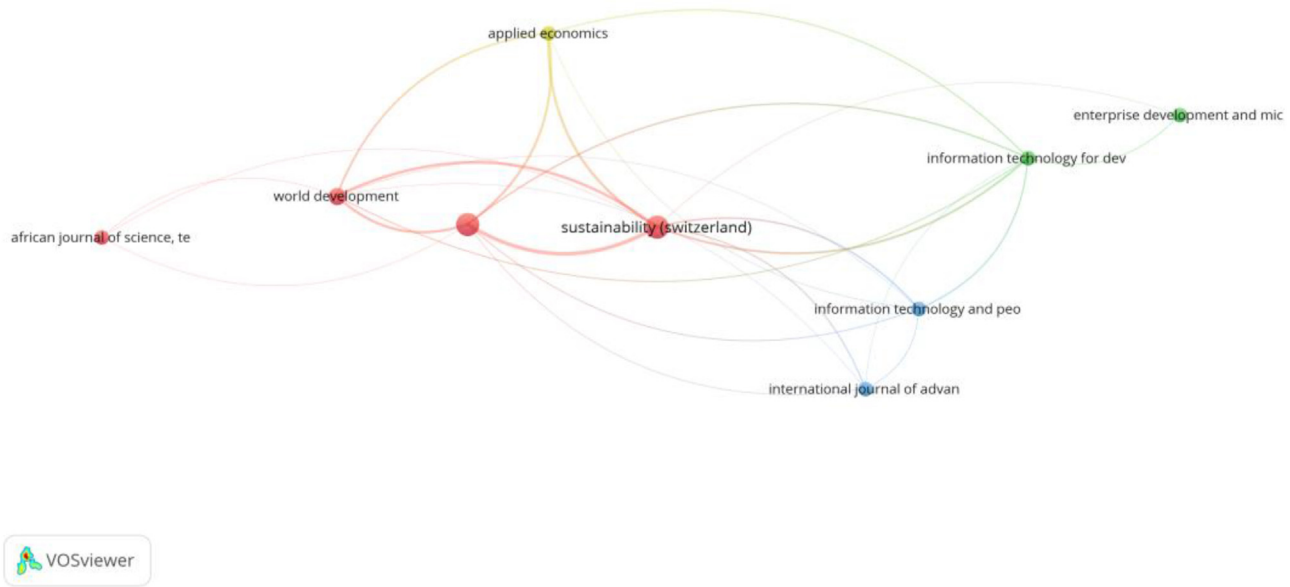


Fig. 2. Bibliographic coupling by sources using 3 articles per sources.

Articles analyzing multiple countries or regions are based on countries that have closely related geographies, economies, or sociopolitical systems. For example, most multi-country articles on Africa addressed issues related to Sub-Saharan Africa or MENA countries (Bongomin, Ntayi, Munene, & Malinga, 2018; Koomson, Bukari, & Villano). One article focused on the state of financial inclusion in least developed countries (LDCs), such as Haiti, Tonga and Bangladesh (Nurse, 2019). Table 2 shows the top 10 most featured developing countries in the single-country focused articles. There were also few articles that compared the state of financial inclusion across countries (Martin, 2019; Senou, Ouattara, & Acclassato Houensou, 2019; Vincent and Evans, 2019).

The country analysis suggests a heavy concentration on a few countries and many countries are either not studied or are understudied. For instance, there are few studies of the Caribbean region or individual countries within the Caribbean. Additionally, most of our knowledge is shaped by the experiences of a few African and Asian nations that differ substantially from other nations. For example, India and China are emerging countries with much greater financial and technological sophistication than most other developing countries. Also, Kenya has much more experience with mobile money, and its regulatory system is more market-driven than most other developing countries (Bara, 2013; Burns, 2018; Suárez, 2016). Thus, it is often held up as a model for promoting financial inclusion (Burns, 2018; Suárez, 2016). Clearly, researching understudied countries and regions will enhance our understanding of financial inclusion and can guide policy and program decisions that better suit these countries.

Table 2
Top 10 countries in single-country articles.

Developing Country	Number of Articles
India	25
China	18
Kenya	15
Uganda	11
Ghana	10
Indonesia	9
Nigeria	7
Zimbabwe	4
Bangladesh	4
South Africa	3

2.4. Article type

To evaluate the distinctive contribution of the articles, they were coded by whether they are conceptual/theoretical or empirical (Short, Moss, & Lumpkin, 2009). Of the 183 articles, 125 were coded as empirical and 58 were theoretical since they were primarily descriptive comprising of narrative reviews and conceptual papers. Further, all articles were coded based whether they used propositions or hypotheses since this indicates whether the research has moved beyond describing and explaining financial inclusion to testing theoretical relationships (Short et al., 2009). Only 15 of the 183 articles tested proposition-s/hypotheses. Some of these articles proposed frameworks to understand and analyze financial inclusion while others focused on validating new constructs. With less than 10 percent of the articles testing proposition-s/hypotheses, FI scholarship in developing countries is largely descriptive and is in its infancy. More rigorous theory-based research can contribute to the maturity of the research field.

Empirical articles were coded based on their research methods, research settings, and analytical methods. Of the 125 empirical articles, 62 used primary data, 42 used secondary data and 21 used a combination of primary and secondary data. Additionally, of the 62 articles that used primary data, 46 used surveys/questionnaires, 8 used interviews, 7 used case studies, 1 used experiment, and 30 used a combination of different methods. Furthermore, of the 46 articles that were based on survey/questionnaire data, 34 used individuals as participants, 7 used households and 5 used businesses. The main analysis methods included regression, econometric analysis, descriptive statistics, and structural equation modelling.

2.5. Citation analysis

Citation analysis is used as a measure of intellectual influence and relevance where higher citations counts are associated with higher contribution and relevance (Sassmannshausen and Volkman, 2018; Trieu, 2017). In our sample, 52 articles (28.4 %) had no citations while another 84 (46 %) had between 1 and 5 citations. Thus, just about 25 percent of the sample articles had greater than five citations, which is an extremely modest level of citations. Fig. 3 displays the articles with the highest citation counts. The most influential articles are Suri and Jack (2016), Maurer (2012), and Leong, Tan, Xiao, Tan, and Sun (2017). These articles deal primarily with mobile money and fintech. Fig. 4

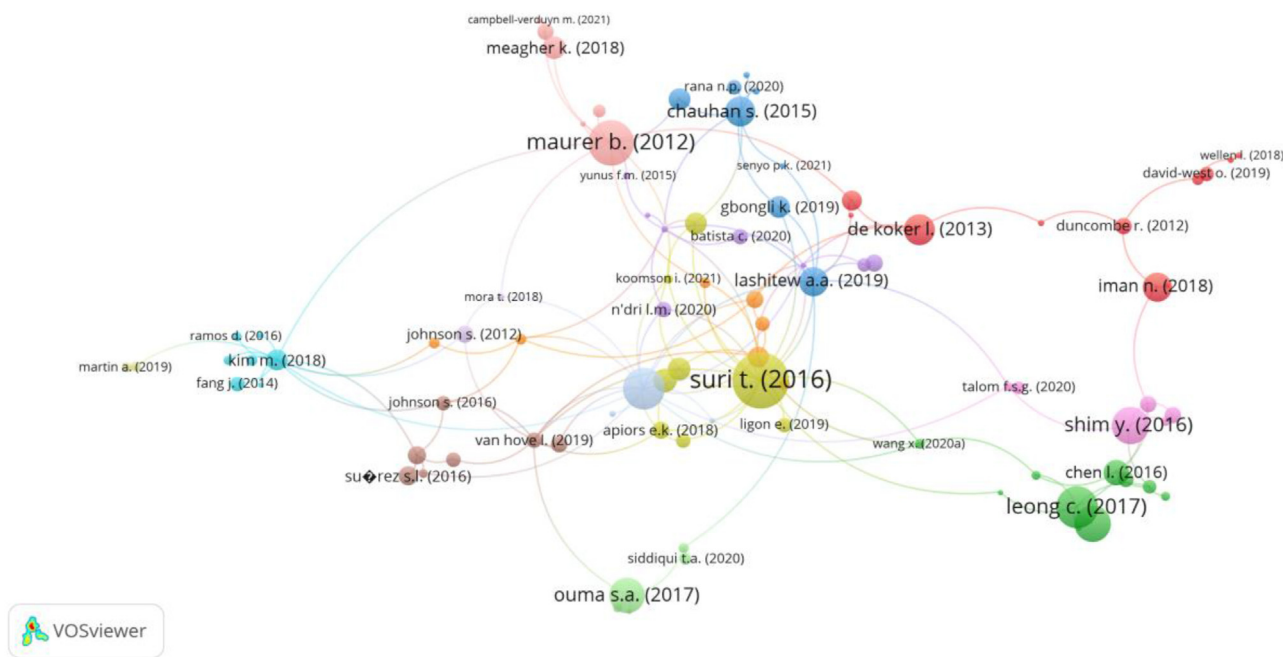


Fig. 3. Citation by articles with minimum of 10 citations per article.

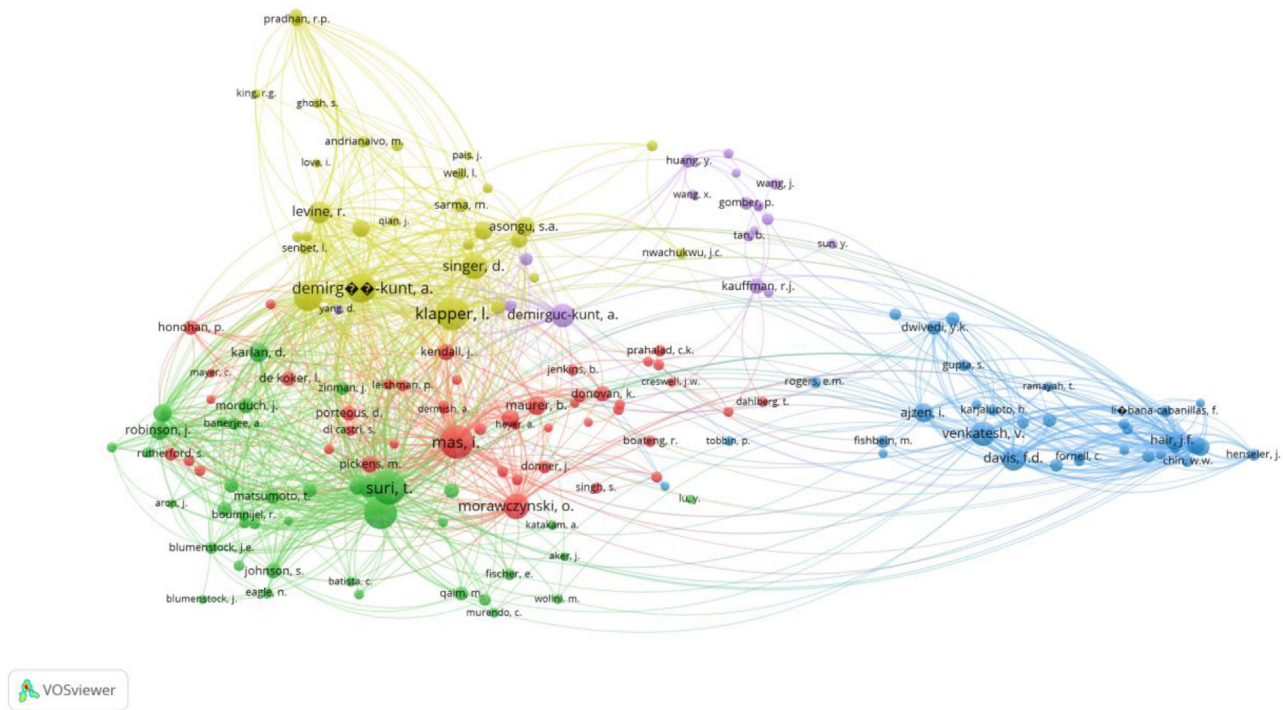


Fig. 4. Co-citation by articles with minimum of 10 citations per article.

shows the co-citation network of the articles with at least 10 citations. The top co-cited articles are [Suri and Jack \(2016\)](#), [Demirgüç-Kunt et al. \(2020\)](#), [Mas \(2009\)](#), and [Maurer \(2012\)](#). These articles deal with mobile money and branchless banking. This shows that the seminal work on mobile money by [Suri and Jack \(2016\)](#) has had a significant influence on subsequent scholarship, particularly the positive view of mobile money. However, recent scholars have contested these positive claims ([Bateman et al., 2019](#); [Bernards, 2019b](#); [Guérin, Guérmond, Joseph, Natarajan, & Venkatasubramanian, 2021](#); [Mader, 2018](#)). Similarly, [Ozili \(2021\)](#) reviewing the international FI literature contends that *that policy makers,*

development economists and practitioners are not interested in critical research — studies that challenge the proxies used, and the assumptions underlying current financial inclusion models (p. 11). Clearly, FI research on developing countries is in its infancy and require greater rigor.

2.6. Keywords Co-occurrence analysis

Keywords are used by authors, editors and publishers to signal important themes in articles and allow researchers to examine large amounts of text in sufficient depth ([Massaro et al., 2016](#)). Keywords

co-occurrence refers to the appearance of a group of keywords together in at least two different articles (Van Eck and Waltman, 2011). Our criterion was for keywords to co-occur in at least five articles. The VOSviewer clustering algorithm objectively identifies clusters, which bring together those articles that mark a specific topic (Van Eck and Waltman, 2011).

Fig. 5 shows the four clusters derived from the analysis. The clusters or thematic areas are labeled as (1) Conceptualization of Financial Inclusion (red cluster); (2) User Perception and Adoption of Fintech (blue); (3) Role of Private Sector in Financial Inclusion and Development (yellow); and (4) Role of Government in Financial Inclusion and Development (green). The keywords making up the clusters and the sub-themes are shown in Table 3. Finally, using these four clusters, we conducted a systematic analysis of the text corpus to identify and critically assess the research comprising the themes. The main findings of this synthesis are discussed next.

3. Findings and discussion

3.1. Theme 1- Conceptualization of Financial Inclusion (red cluster)

The keywords comprising the conceptualization theme pertain to the scope, target and impact of financial inclusion (Table 3). These keywords are integral to the way financial inclusion is characterized in the literature. We have identified over 40 definitions of financial inclusion that differs in purview and focus. Given the diversity of definitions, it is perhaps more helpful to emphasize the key dimensions from these definitions. Generally, financial inclusion is concerned with providing users,

particularly poor, marginalized, vulnerable, and unbanked individuals, households, groups, and communities access to a range of formal financial services to improve their quality of life (Pradhan et al., 2021). Additionally, financial inclusion involves providing financial services in an affordable, convenient, and efficient manner to facilitate regular usage of the services. The financial services range from simple payments for goods and services, remittances, credit and saving services to more complex services such as insurance, home and personal loans, investment, pension, and financial education (Demirgüç-Kunt et al., 2020).

Financial inclusion is defined and measured in terms of access to and use of formal financial services such as a bank account, savings, payments, credit, remittances, investments and financial advice (Demirgüç-Kunt et al., 2020). Further, mobile money, mobile money adoption, and mobile money agents and users are crucial elements of financial inclusion (Amoah, Korle, & Asiama, 2020; Della Peruta, 2018). Additionally, the primary targets of financial inclusion initiatives are vulnerable, marginalized individuals, households, groups, communities, and people in rural areas, especially poor, low-income, women, and less-educated individuals (Koomson et al., 2020). Further, financial inclusion is aimed at reducing poverty and income inequality (Demir et al., 2020; Koomson et al., 2020), increasing welfare outcomes (Egami and Matsumoto, 2020), and achieving various sustainable development goals (Pradhan et al., 2021).

The finance and growth literature provide strong theoretical and empirical justifications for establishing well-developed and inclusive financial systems (Beck et al., 2007). According to Beck et al. (2007), a well-developed and inclusive financial system can reduce information

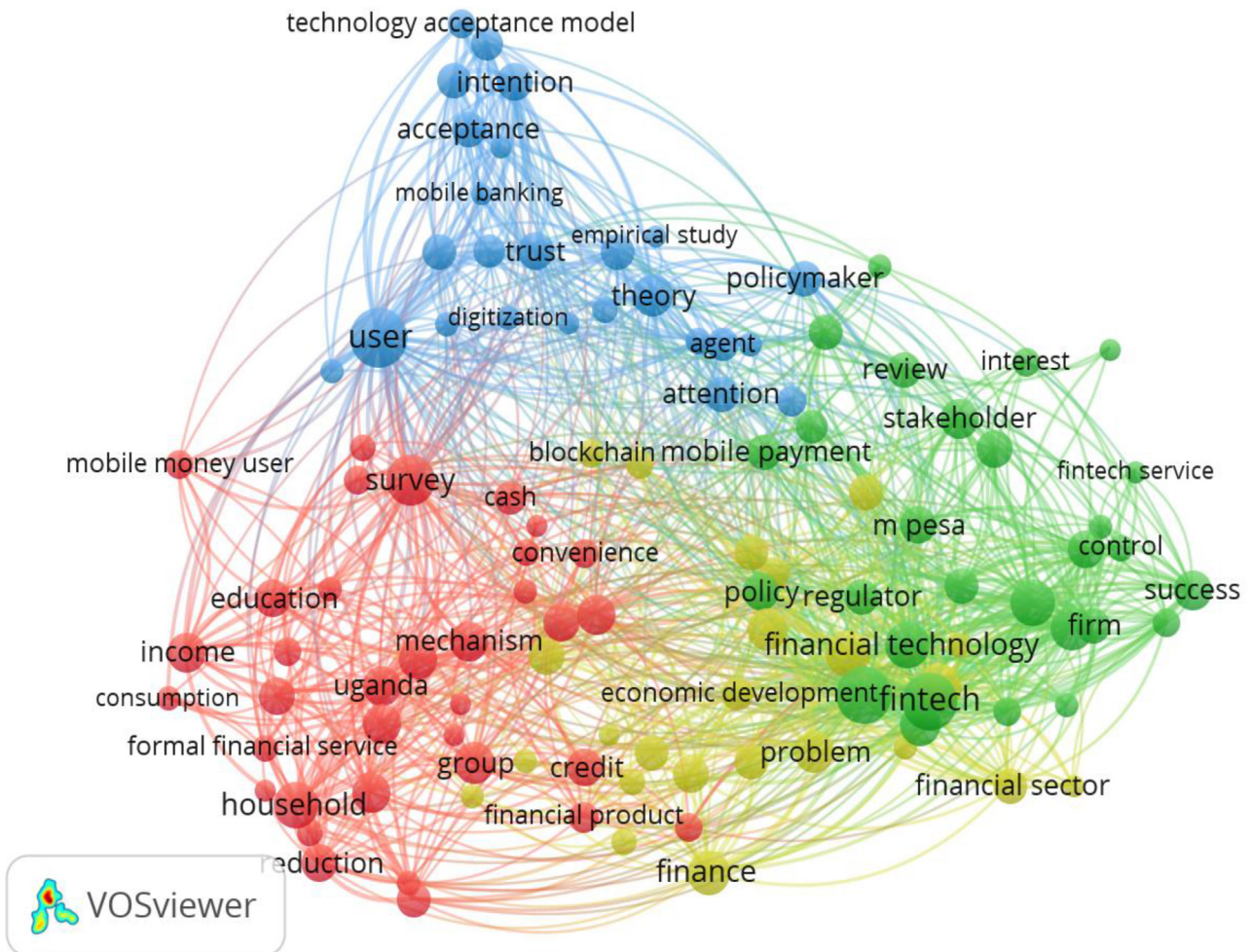


Fig. 5. VosViewer keywords co-occurrence analysis.

Table 3
Summary of themes, sub-themes and associated keywords.

Themes	Sub-Themes and associated keywords
Conceptualization of FI (Red Cluster)	<p>Scope of Financial Inclusion: formal financial services; account; bank account; saving; cash; credit; remittance; investment; financial product; financial transaction; existence; delivery; convenience; mechanism; mobile money adoption; mobile money agent; and mobile money user.</p> <p>Target of Financial Inclusion: vulnerability; client; group; household; women; rural area; age; gender; income; education</p> <p>Impact of Financial Inclusion: poverty reduction; sustainable development; consumption</p>
User Perception and Adoption of Fintech (Blue Cluster)	<p>Theory: user; awareness; attention; acceptance; intention; theory; technology acceptance; usefulness; ease; trust; identification and agent</p> <p>Evidence: empirical evidence; empirical study; survey data; questionnaire; structural equation; Ghana; mobile banking; policymaker; digitization; expansion; and future</p>
Financial Innovation and Private Sector Financial Institutions (Yellow Cluster)	<p>Financial Innovation: financial innovation; initiative; digital finance; digital payment; digital technology; blockchain; inclusive finance; experience; availability; provision; implication; financial inclusion; financial exclusion; problem; low level; promotion; contribution; economic development</p> <p>Financial Institutions: financial sector; financial institution; state; and world bank; and regulator</p> <p>Public Policy: policy; regulation; control; emergence; financial technology; fintech; financial service; mobile financial service; mobile payment; m-pesa; sector; industry; company; firm; stakeholder; privacy; security; success; case study; interview</p>
Public Institutions and Public Policy (Green Cluster)	

asymmetries and transaction costs, influence saving rates, investment decisions, technological innovation, contribute to economic growth and alleviate poverty (Beck et al., 2007). They argued that financial market imperfections can exclude the poor or small entrepreneurs who lack collateral, credit histories, and connections to access credit markets. Such constraints make it difficult for poor households or microentrepreneurs to finance high return investment projects, reduce the efficiency of resource allocation, and adversely affect growth and poverty alleviation (Beck et al., 2007). For instance, Banerjee and Newman (1993) reported that imperfect credit markets limit the ability of poor households to borrow in order to invest in their education or setup their own businesses. Also, a well-developed and inclusive financial system can foster economic growth by enabling talented entrepreneurs access to the necessary financial services to create new firms that are essential for economic growth. Access to finance for large parts of the population is important to expand opportunities beyond the rich and connected and is crucial for a thriving market economy (Beck et al., 2007).

Further, the groups targeted for financial inclusion may be excluded because of geographic, socio-economic, cultural, and political reasons. Investments in branchless banking and similar infrastructure may help improve financial inclusion resulting from geographical barriers (Stapleton, 2013). Also, digital financial services may lead to greater financial inclusion for women, which in turn can contribute to greater economic empowerment and gender equality (Dziwornu, Anagba, & Aniapam, 2018; Hendriks, 2019). On the contrary, Bhagat and Roderick (2020) showed how credit and microfinance to refugees in Kenya

contribute to financial exclusion because they place ‘the burden of survival on refugees themselves, absolving both the Kenyan state and global aid actors from any welfare responsibility’ (p. 1510).

Another important aspect of FI is mobile money (m-money). Mobile money refers to a suite of financial services offered through mobile phones and other handheld mobile devices (Bara, 2013). These services include domestic and international remittances, payments for goods and services, and mobile banking, through which customers can access their bank accounts, pay bills, or deposit and withdraw funds. M-money enables users to perform these financial services using a mobile phone and without any internet connection (Suárez, 2016). Regarding ICTs, Pradhan et al. (2021) argued that communities in rural and remote areas often do not have access to physical financial institutions and are thus, unable to access crucial financial services that could improve their lives. To bridge this gap, many countries use ICTs to deliver financial services to these communities. Fintech can lower the costs of providing innovative financial services, thereby enabling low-income customers to transact in irregular, tiny amounts, helping them to manage their uneven income and expenses (Babajide et al., 2020).

The World Bank's Global Findex database offers the most comprehensive assessment of financial inclusion based on the degree of access to and use of formal financial services. Moreover, indicators such as financial service penetration, availability and use have been used to define a financial inclusion index (Demirgüç-Kunt et al., 2020; Tram et al., 2021). Consequently, technologies, strategies and policies that improve access, penetration and use of financial services tend to have a positive bearing on financial inclusion. In recent years, the evolution of ICTs and their growing ability to streamline financial service offerings has increased the prospects of financial inclusion.

Measuring financial inclusion is important for understanding the progress and impact of financial inclusion initiatives. Consistency in measurement is key for developing comparable cumulative evidence on financial inclusion. Analysis of the extant literature point to various approaches being used, which makes comparisons of progress and impact challenging. The measures include availability, access, and use of formal financial services (Demirgüç-Kunt et al., 2020; Koomson et al., 2020). Some studies have used single measures such as penetration – the total number of bank accounts (or proportion of unbanked) in each population (Fernandes et al., 2021) while others have relied on two or more indicators such as access to and use of formal financial services (Dziwornu et al., 2018; Munyegera and Matsumoto, 2018). More recent efforts measure financial inclusion using composite indexes involving multiple dimensions (Demirgüç-Kunt et al., 2020; Tram, Lai, & Nguyen, 2021). Different measures produce different outcomes as shown by Hamdan, Lehmann-Uchner, and Menkhoff (2021) who found that 86 % of microentrepreneurs own a mobile money account, but only 49 % actively use it. This implies that if *ownership* measures are used, then FI has a high impact but if *usage* rates are used, then FI has a much lower impact. Inconsistencies in measurement have led to claims that financial inclusion is a contested and contestable enterprise (Ahmad et al., 2020; Bateman et al., 2019; Bernards, 2019b; Mader, 2018). This is a very thorny issue for policymakers since it can lead to selection of outcome measures that paint the most favorable outcomes for service providers and governments rather than for the targeted population.

Moreover, financial inclusion is not an end but a means towards achieving broader societal goals such as reduction in income inequality, poverty, and other welfare outcomes including better health, education, and nutrition. For instance, in their study of 5066 households in Burkina Faso, N'Dri and Kakinaka (2020) found that an increase in financial inclusion and mobile money use was related to better nutrition, education, and healthcare. Similarly, Wang and He (2020) surveyed 1900 farmers in rural China and found that digital financial services reduce vulnerability to poverty by enabling farmers to better cope with risks. Furthermore, in cases where financial inclusion has led to poverty reduction, the effects were more pronounced among women and female-headed households (Koomson et al., 2020).

3.2. Theme 2: Perception and adoption of fintech (blue cluster)

The second theme to emerge from the co-occurrence analysis is concerned primarily with understanding user perception, awareness and adoption of fintech and financial inclusion initiatives. The keywords comprising this cluster are divided into theory and evidence underlying user adoption. In terms of theory, many of the keywords (e.g., acceptance, intention, ease of use and usefulness) are integral constructs of technology adoption models such as the Technology Acceptance Model (TAM) and its many variants (e.g., UTAUT).

TAM predicts that perceived ease of use and perceived usefulness of a new technology will increase user acceptance and adoption. Additionally, factors such as perceived regulator assurance, service affordability, convenience, and proximity to the nearest bank branch have been found to influence the perceived usefulness of fintech (Nedu Osakwe and Chukwuemezie Okeke, 2016). Further, a survey of 392 women entrepreneurs in Kenya indicated that greater awareness of mobile money technologies may increase use of mobile payment services and financial inclusion (Gichuki and Mulu-Mutuku, 2018). Another factor that influences adoption is trust, which is often characterized in terms of reliability, transparency, and vulnerability of financial services (Dziwornu et al., 2018). For example, Dziwornu et al. (2018) studied 300 women entrepreneurs in Ghana and found that perceptions of reliability was associated with increased usage of mobile financial services. Meanwhile, other studies have explored the vulnerabilities of fintech customers to fraud (Bongomin and Ntayi, 2020; Tade and Adeniyi, 2020) and surveillance (Martin, 2019), which could discourage fintech adoption and inhibit financial inclusion. Indeed, surveillance and other measures to curb fraud could have severe unintended consequences such as increasing the burdens on the targeted populations for financial inclusion. This requires governments and policymakers to balance the benefits of financial inclusion with the increased burdens of fraud control measures.

Despite these theoretical arguments, Demir et al. (2020) contend that the empirical evidence on the financial inclusion-income inequality nexus remains inconclusive. Further, based on the Global Financial Inclusion Survey, Demirgüç-Kunt et al. (2020) found that high cost, distance, lack of enough money, and documentation requirements are common reasons given for financial exclusion. It is often argued that financial technologies (Fintech), digital financial innovations, and information and communication technologies (ICTs) are increasingly becoming key enablers of financial inclusion (Asongu and Asongu, 2018; Schuetz and Venkatesh, 2020) because they facilitate a range of financial services from simple money transfers to more complex savings, investment, credit and microfinance offerings. Fintech is the delivery of financial services through innovative electronic technologies (Demirgüç-Kunt et al., 2020). Fintech services include mobile money, mobile/internet banking, use of cards and Point-of-Sale machines (Babajide et al., 2020). However, mobile financial service is the type of Fintech with the greatest potential to bring the under-banked into the formal financial system (Demirgüç-Kunt et al., 2020).

It is observed that while these factors may help explain initial acceptance, they are less appropriate for explaining sustained use. Additional research is needed that explore the influence of other factors such as organizational structure, strategy and behavior of fintech actors, consumers' social networks and other supply-side factors on the acceptance and continued use of financial inclusion initiatives. Examples of potentially relevant frameworks include the Expectation-Confirmation-Model (Bhattacharjee, 2001), Technology Continuance Theory (Liao, Palvia, & Chen, 2009), and Social Influence Model (Vannoy and Palvia, 2010). Furthermore, these micro-level models have not yet incorporated macro-level or institutional factors such as how differences among countries in terms of digital readiness and financial readiness as well as other socio-economic and cultural factors impact adoption, use and benefits derived from financial inclusion (Lyons, Kass-Hanna, & Liu, 2021). The literature has established a positive link between financial

literacy and financial inclusion (Grohmann, Kluhs, & Menkhoff, 2018; Lyons et al., 2021), however, there is a dearth of research on how specific financial literacy programs impact FI across different geographies.

3.3. Theme 3: Financial innovation and private sector financial institutions (yellow cluster)

The keywords comprising this theme pertain to financial innovations offered by private sector financial institutions to facilitate the provision, availability, and experience with financial technology. In terms of financial innovation, the focus is on digital finance (e.g., digital payments) digital technologies (e.g., blockchain) and their implications for financial inclusion, financial exclusion and economic development.

The articles in this cluster position fintech companies as innovators that are disrupting the financial sector. They provide a range of innovative financial solutions that are enabled by digital technologies. Additionally, they tend to be nimbler than bureaucratic, highly regulated, and slow paced traditional financial institutions (Leong et al., 2017). They can reach more consumers, especially those who would otherwise be excluded from banks and other traditional financial institutions. In some studies, banks and other traditional financial institutions are viewed as ineffective in promoting financial inclusion or as actively trying to undermine or slow financial inclusion adoption and use (Bara, 2013; Burns, 2018; Suárez, 2016). These developments have sparked questions about the role formal financial institutions play in driving financial inclusion. Several studies underscore the potential trade-offs that financial institutions must make to promote financial inclusion while minimizing risks and adhering to best practices of the financial sector (de Koker and Jentzsch, 2013; Ramos, Solana, Buckley, & Greenacre, 2016).

Additionally, other studies have examined how banks and other financial institutions may partner with fintech and ICT companies to deliver new products and services. For instance, banks in some developing countries have partnered with Mobile Network Operators (MNOs) to facilitate adoption and use of mobile money (Bara, 2013; Burns, 2018; Suárez, 2016). Overall, there are many unanswered questions around the extent to which banks are keen on working with fintech companies and MNOs to enhance financial inclusion. Issues such as the differences in accountability and regulatory regimes for banks versus fintech companies and whether the financially excluded are profitable enough to pursue are unresolved and require further scholarly research (Bara, 2013; Burns, 2018; Suárez, 2016).

3.4. Theme 4: Public institutions and public policy (green cluster)

The fourth theme to emerge from the co-occurrence analysis is concerned primarily with public institutions (e.g., government, central bank), public policy and regulations (e.g., privacy, security) regarding the emergence and control of the fintech industry, stakeholders and financial inclusion services (e.g., mobile financial services). The literature indicate that government policies can either accelerate or inhibit the expansion and impact of financial inclusion (Bara, 2013; Burns, 2018; Suárez, 2016). Similarly, formal financial institutions, particularly banks, can have a major impact on advancing financial inclusion depending on the extent to which they can work effectively with non-bank financial institutions such as mobile money operators (MNOs) and other Fintech companies (Bara, 2013; Burns, 2018; Suárez, 2016).

The extant literature underscores the differences in government legislations across developing countries. For instance, Suárez (2016) compared regulations in Mexico and Kenya and Burns (2018) compared regulations in various African countries. Furthermore, fintech legislation may introduce a variety of both restrictive and enabling measures to protect customers while promoting financial inclusion. For instance, in 2016 the Financial Services Authority (OJK) of Indonesia passed a peer-to-peer (P2P) lending regulation that addresses different products, services and customer protection controls necessary for improving access

to financial services (Davis, Maddock, & Foo, 2017).

It is also noted that government regulations are informed by local legislations and/or international standard setting bodies such as Financial Action Task Force (FATF) (Kersop and Du Toit, 2016). They involve various parties such as government, public, and private sector organizations (Bara, 2013; Burns, 2018). More specifically, the targets of fintech policies may be consumers, businesses, and other stakeholders (Davis et al., 2017). For instance, a recent policy in India promoted the adoption of digital payments by incentivizing both customers and merchants (Ligon et al., 2019). In these cases, the policies are aimed at addressing financial inclusion barriers while balancing the interests of the different stakeholders. Essentially, there is a strong call among scholars for governments to create more *enabling environments* to promote fintech and financial inclusion by balancing innovation and regulation. However, research on the mechanisms needed to achieve this balance is lacking.

4. Financial inclusion diamond framework

Based on the preceding analyses of the four thematic clusters, we propose a conceptual framework to organize the literature and chart a future research agenda. The conceptual model, which we label as the Financial Inclusion Diamond is shown in Fig. 6.

Fig. 6 shows the four key components of financial inclusion and their interdependencies, which is summarized here. First, the supply of financial inclusion initiatives is designed and regulated by institutions such as private banks, technology companies, fintech companies, governments, central banks, and regulators. Bara (2013), Burns (2018), and Suárez (2016) provide detailed comparative analyses showing how government regulations and policies promote or inhibit access, use, and the quality of financial inclusion initiatives. These studies found many disparities in FI approaches and in the outcomes on poor, vulnerable, and

marginalized individuals, households, group, and communities. Similarly, it has been shown that the market structure, pricing, and regulation of mobile money operators or mobile network operators (MNOs) limit access, use, and social value creation (Ahmad et al., 2020; Lashitew, van Tulder, & Muche, 2020) or perpetuate exclusion (Bhagat and Roderick, 2020; Guérin et al., 2021; Gutierrez-Romero and Ahamed, 2021). This implies that governments and policymakers ought to find the right mix of regulations, policy, and programs that can result in a robust and well-functioning FI system. More research is needed to guide these policies.

Another dimension affecting the supply of financial inclusion initiatives is the availability of various types of ICTs, which are often provided by technology companies. In this regard, some scholars argue that for mobile money to be successful, a country must have a large telecommunications company that can absorb the large investment needed to develop and implement a mobile money platform (Argent, Hanson, & Gomez, 2013; Hughes and Lonie, 2007; Mas, 2009). Additionally, fintech can play a key role in fostering financial inclusion by providing access and enabling continued use of financial services (Demir et al., 2020; Pradhan et al., 2021). On the other hand, users represent the demand side of the financial inclusion diamond. Financial inclusion initiatives target poor, vulnerable and marginalized individuals, households, groups and communities. This includes women, the less educated, and rural communities. The adoption and continued use of various financial inclusion initiatives are important for their intended positive impacts to materialize. A considerable amount of the extant research focuses on identifying the characteristics of users and antecedents of user adoption.

The final component of financial inclusion diamond is concerned with the impact of financial inclusion on various aspects of vulnerable and marginalized individuals, households, groups and communities (micro-level) as well as on countries (macro-level) in terms of reducing poverty and income inequality and promoting economic development. At the

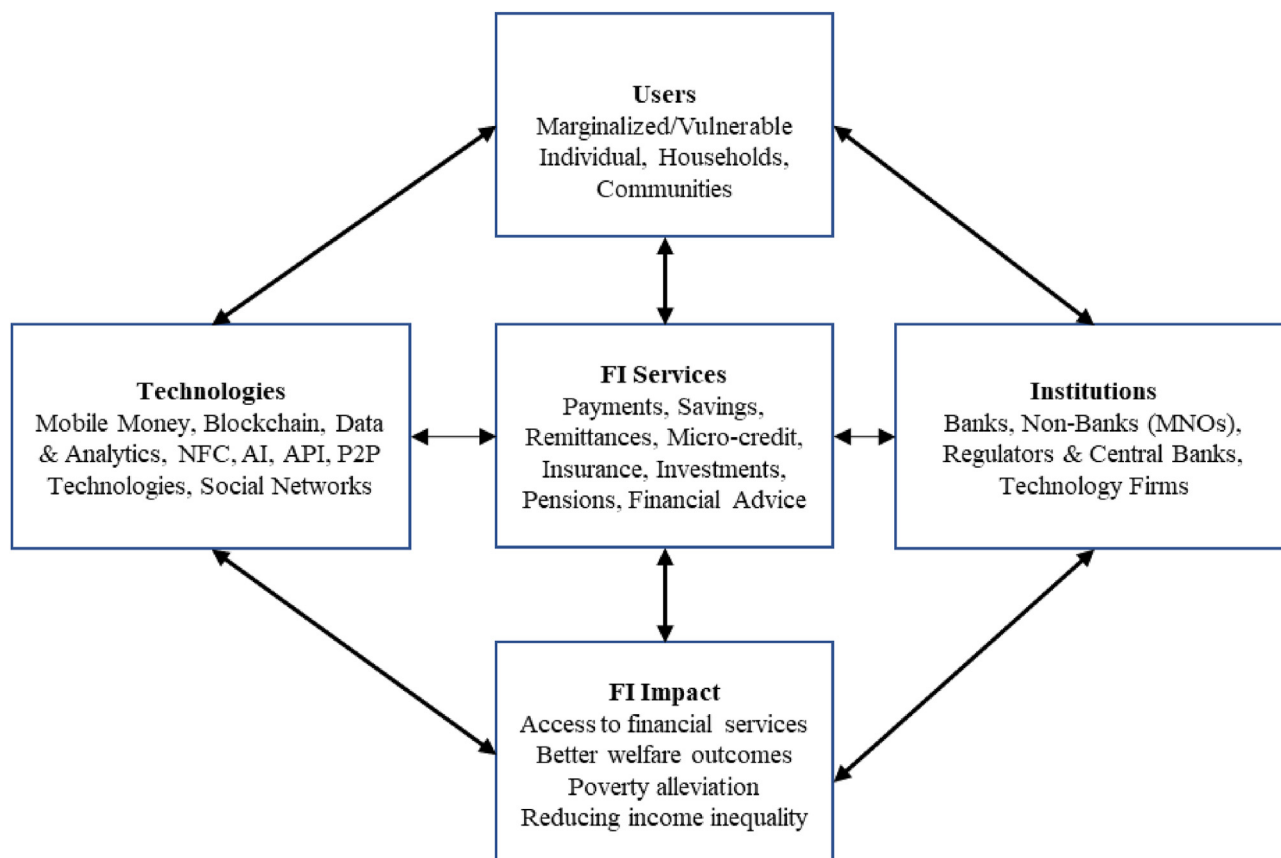


Fig. 6. Financial inclusion diamond.

micro-level, the potential positive impacts of financial inclusion include savings, consumption, remittances, micro-entrepreneurship, risk mitigation, health, education, and female empowerment (Ahmad et al., 2020; Swamy, 2014). Although there is much research touting the positive impacts of financial inclusion, other studies cast doubt on the evidence or presented evidence to the contrary. For example, Bateman et al. (2019) referenced the very high rates of failure of microenterprises and the resulting negative consequences (e.g., over-indebtedness or perpetual indebtedness of the poor). Others point to negative outcomes such as microcredit on predatory terms (Dos Santos and Harvold Kvangraven, 2017), the extreme financial inclusion problem, the inactive user problem (Ozili, 2021), and fraud (Botchey, Qin, & Hughes-Lartey, 2020; Tade and Adeniyi, 2020). Similarly, Demir et al. (2020) found that fintech reduces income inequality indirectly through its effects on financial inclusion, however, the impact is less in low-income countries compared to developed countries. Indeed, FI is more acute in developing countries and yet the impact is less in these countries (Demir et al., 2020). More evidence is needed to improve understanding.

5. Future research directions

Based on the structured literature review and using the financial inclusion diamond as an organizing framework, we propose some areas where further research can be quite useful. More theory-driven research evidence is needed to establish the direct and indirect interdependencies depicted in the financial inclusion diamond. For example, is there a direct relationship between fintech and financial inclusion impact or is the impact indirectly affected (mediated or moderated) by the nature of financial innovation services? Similarly, how should the relationship between regulation be modeled in such a theoretical framework - directly or indirectly as either a mediator or moderator? These relationships were explored in a handful of studies such as in the context of income inequality (Demir et al., 2020) and economic growth (Pradhan et al., 2021) but not adequately regarding other micro-level impacts.

The complexities of financial inclusion initiatives and their differential impacts suggest that more nuanced theoretical frameworks are needed to guide empirical efforts aimed at providing clearer explanations. For instance, what factors drive the design of FI initiatives (e.g., microfinance initiatives) and can the designs from one country be replicated or transferred in other countries i.e., a universalist approach versus a contextualized approach (Pozzebon et al., 2019)? These two contrasting approaches require very different processes (Pozzebon et al., 2019) and it is still unclear if these two approaches can be coupled in practice.

More research is needed to guide policymakers in their quest to create an enabling environment for financial inclusion to flourish. Government regulations can foster or stifle financial inclusion (Bara, 2013; Burns, 2018; Suárez, 2016), lead to exploitation or empowerment (Rodima-Taylor and Grimes, 2019), or negate the impact of financial inclusion on the intended target group (Suárez, 2016). Thus, the creation of an enabling environment characterized by less regulation and more market-based policies and innovation is a common refrain (Bara, 2013). Balancing regulation with innovation is a complex challenge since regulations are designed to protect stakeholders while innovation allows for risk-taking, new products, services and technologies that disrupt the status quo. Enabling fintech organizations and MNOs, which disrupt the traditional financial system that favors banks and traditional financial institutions can lead to undesirable competition between these players. Similarly, relaxing 'know your customer' and 'anti-money laundering' (KYC-AML) laws, customer due diligence rules, capital and reserve requirements and other costly regulations to improve the viability of fintech and MNOs (Burns, 2018) carry many risks including fraud and the extreme financial inclusion problem (Ozili, 2021). Key questions are whether banks, fintech and MNOs can work together to create a more enabling environment for financial inclusion to flourish and how to effectively balance regulation and innovation in order to promote

financial inclusion. These questions require further systematic research and evidence.

Financial inclusion is a global problem, but is experienced at the local level by poor, vulnerable, and marginalized individuals, households, groups, and communities. These target groups are not homogenous but are diverse depending on regions, poverty level, remote or rural areas, and females households (Lyons et al., 2021). This distinction is rarely made in the extant literature and contributes to mixed findings. For example, the rural poor faces different contexts, challenges and needs relative to the urban poor. Therefore, to properly contextualize the impact of financial inclusion initiatives, more micro level studies involving comparable local populations (e.g., rural poor to rural poor or urban poor to urban in various geographies) are needed. Additionally, greater methodological rigor and details are required, particularly in terms of the process, assumptions, methods and other criteria used to identify 'excluded members of the population' – the so-called *identity problem* (Ozili, 2021). Also, in many cases the sample sizes are relatively small and seems to be based on convenience. These considerations are crucial for building a robust and coherent body of evidence on financial inclusion.

Mobile money operators (MNOs) are one of the key players in financial inclusion and more research is needed to advance a deeper understanding of their role in financial inclusion ecosystem. The extant literature portrays a very positive picture based on the experiences of limited geographical regions such as Kenya (Ahmad et al., 2020). However, the literature on the motivations, strategies, organizational structure, competition, pricing, commission structures, and business models is sparse (Rodima-Taylor and Grimes, 2019). Specifically, the extent to which they contribute to financial exclusion rather than inclusion, vulnerability rather than empowerment or negate the impact of financial inclusion initiatives is not well understood (Ahmad et al., 2020). Peša (2018) found that while mobile money can generate employment and foster entrepreneurship, it can create new socio-economic inequalities. The effectiveness of MNOs and their platform infrastructures depend on existing social structures and systems of livelihood along with their organizational and business models (Rodima-Taylor and Grimes, 2019). More critical research covering other countries and regions is needed given that MNOs and the digital infrastructures are socially embedded – they build on indigenous knowledge and patterns of resource management, cultural monetary practices, and kinship values (Rodima-Taylor and Grimes, 2019). This is particularly important in the post-Covid 19 era as demonstrated by Guérin et al. (2021) who claim that:

The COVID-19 pandemic exposes the limits and exclusionary tendencies of the for-profit financial inclusion industry. The unequalizing breakdown of financial inclusion infrastructures during the pandemic prioritizes future revenue extraction over current livelihood needs, throwing hard-hit borrowers back on hierarchical informal financial and social infrastructures to cope with COVID-19-induced risk (Guérin et al., 2021, p. 927).

Also, more research is needed on the datafication of financial inclusion. Anecdotal evidence suggests that fintech companies gather a tremendous amount of data on the poor, vulnerable and marginalized people they serve and mine this data to profit handsomely. Ahmad et al. (2020) highlighted the case of M-Pesa in Kenya, which is operated by Safari.com and its UK partner Vodafone. They reported that "Safaricom recorded more than 280 million transactions in 2013 totaling US\$22 billion, equivalent to over one-quarter of Kenya's GDP" (Ahmad et al., 2020 p. 10). The benefits to FI populations from this level of transactions need further assessment. The datafication of financial inclusion raises many questions regarding the collection, use, security, and privacy of the data as well as the profit motives of MNOs and fintech companies. Comparative evidence on this phenomenon across countries and regions is scarce.

Another topic where there is a dearth of research pertains to the role of social and community-based non-profit organizations in financial inclusion. These organizations generally work closely with poor,

vulnerable and marginalized people and can potentially influence them to adopt financial inclusion initiatives. However, there is limited evidence on the nature, role, and effectiveness of community-based organizations in supporting financial inclusion. Pradhan et al. (2021) suggest that champions and peer groups can be used to encourage, educate, and inspire the financially excluded to participate in the digital economy, thereby transcending traditional socio-cultural norms. Similarly, the role of social networks in promoting financial inclusion was examined by Bongomin et al. (2018).

More research utilizing multi-level modeling to simultaneously evaluate the impact of various individual level and country level institutional factors on financial inclusion is needed. The diffusion of financial inclusion initiatives, especially mobile money, has been uneven across countries. Questions such as how individual-level digital readiness, financial readiness, financial literacy and country-level digital readiness, financial infrastructure, and other variables influence financial inclusion across the globe can shed light on the relative importance of these factors for financial inclusion. The FINDEX database can be combined with other databases that provide data on country-level institutional factors to facilitate such analyses.

6. Conclusion

Research on financial inclusion in developing countries has grown exponentially over the last five years but there remains many unanswered questions and contradictory findings around the effectiveness and outcomes. This makes it very challenging for policymakers to discern effective from less effective policies, programs and initiatives. FI research covers a wide range of topics but is dominated by descriptive empirical studies and an obvious paucity of studies employing rigorous theoretical models and analytical methods. This raises serious questions as to the extent to which policymakers can rely on existing evidence to formulate and implement FI policies. Early research portrays financial inclusion in an overwhelmingly positive light implying that FI generates positive outcomes. However, more recent studies have yielded contrasting evidence that have contributed to a mixed and contested view of financial inclusion. Thus, there is a need for a better synthesis of the literature to develop greater clarity and deeper insights that can help policymakers. Our study synthesizes the broad literature using systematic literature review and text mining. We identified four thematic clusters around which financial inclusion research can be classified and organized. The four thematic clusters are (1) conceptualization and impacts of FI, (2) user perceptions and adoption, (3) role of financial innovation and private sector financial institutions, and (4) role of public institutions and public policy in FI. We have used these four clusters to propose a *financial inclusion diamond* framework. The financial inclusion diamond reflects key components of the FI ecosystem - users, institutions, technology, regulations, services, and impacts of various financial inclusion services. The interrelationships and interdependencies of the components allow for clearer understanding of the literature and point to various gaps requiring further research. Several important research topics and questions are presented.

In addition to the several topics described in the preceding section requiring further investigation, we believe that future research must consider the impact of several recent global trends and their implications for financial inclusion. Due to the recency of these developments, they are not adequately captured in the current literature and were not included in our synthesis. One future research topic pertains to the impact of the Covid-19 pandemic on financial inclusion policies, programs and initiatives on poor, vulnerable, and marginalized people – individuals, households, groups, and communities. The early study by Guérin et al. (2021) suggests a breakdown in financial inclusion infrastructures with devastating consequences on the most vulnerable. More research is needed to guide governments and policymakers to design FI policies that can withstand severe external shocks of the magnitude of the Covid-19 pandemic. A related issue needing further

research is the impact of digitalization on FI and the lives of the poor, vulnerable and marginalized people. Digitalization, which refers to the increased use of digital technologies in all spheres of business activities, were intensified during the pandemic due to government mandated lockdowns and restrictions. This is particularly relevant given that the targeted populations for financial inclusion tend to be people with low digital literacy, low financial literacy, and those lacking access to computer technologies. The issues raised by digitalization are many with far reaching consequences for FI populations. Yet another important trend that is developing pertains to increased tensions and conflicts among nation states and within nation states that have led to the introduction of more nationalistic or isolationist approaches. These events and the attendant consequences tend to have disproportionate effects on poor, vulnerable, and marginalized individuals, household, group and communities. The work by Bhagat and Roderick (2020) provides some insights of the effectiveness of FI on refugees. More investigation is needed on this topic in different contexts and issues. Understanding the far-reaching impacts on FI policies, programs and initiatives are crucial for effective policy responses. Additionally, a relatively recent issue requiring further investigation pertains to the impact of very restrictive financial policies designed to curb high inflation around the globe. Understanding the extent to which increased inflation i.e., dramatic increases in the cost-of-living, exerts detrimental impacts on people at or near the poverty line is crucial. Quality-of-life issues related to food security, health, education, and other daily living activities of FI target populations require further investigation.

Finally, despite the study's contribution, there are a few caveats that must be considered when interpreting the results. First, the study focused primarily on peer-reviewed journal articles, and this represents a slice of the conversations on financial inclusion. Also, journal articles published after June 2021 and not indexed in Scopus are not included since the study relied exclusively on the Scopus database, which provides the meta data needed for bibliometrics and structured literature review. It must also be noted that while we highlight differences among countries in FI, we have not specifically focused on country comparisons as this is outside the scope of our study. Another caveat pertains to the time frame covered by the study, which is 1990 to June 2021. Thus, research covering topics related to the Covid-19 pandemic, increased digitalization, inflation and other recent macro events are not included since many of these studies are only now being published.

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Declaration of competing interest

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