Research Article

Financial Self-Efficacy Research: A Systematic Bibliometric Mapping (1994-2023)

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Abstract:

Financial self-efficacy portrays the confidence of an individual in prudent financial decision-making. The study aims to conduct a comprehensive bibliometric and systematic mapping analysis across three transformative decades from 1994 to 2023, revealing the evolving phases of financial self-efficacy. The study has systematically filtered data from the Scopus database using PRISMA guidelines. The study retrieved 201 articles after data extraction, refining, and filtration processes. The study aims to explore the research output of scholarly shifts, geographical contributions and thematic development of articles on financial self-efficacy by identifying the prominent research gaps in the studies. It also reveals an exponential growth in financial efficacy since 2018. The growth has persisted notably in countries like the United States, Malaysia and India. The findings provide a comprehensive overview of financial self-efficacy research, informing future research directions and policy development. The study contributors have transferred innovative insights into the core research areas of financial behaviour, literacy, and psychological mechanisms. Despite this progress, the study has found knowledge gaps in Fintech and long-term financial education programs in the emerging era. This review study reveals a complex interplay among the unexplored avenues that demand scholarly attention. The study identifies these research frontiers and provides a strategic roadmap for academicians, policymakers, and practitioners committed to enhancing financial well-being.

1. Introduction

Transforming financial outcomes through improved personal financial management is challenging in the current economy. Due to the rise in cost of living, debt, lack of savings, investments, and unplanned retirements, the financial downturn strikes the financial decision-making. Given the current economic condition, prioritising well-managed financial decision-making is crucial for overall well-being [1]. Failing to understand financial concepts and their timely application has substantial economic consequences over spending more on fees, accumulating larger debt burdens, and facing higher borrowing costs due to elevated loan costs [2,3]. Financial self-efficacy paves the confidence in an individual to manage one's funds and guides toward achieving financial goals [4]. An individual's self-efficacy encompasses self-confidence, optimism, and motivation to tackle life's challenges effectively [5]. This can be mastered by individuals who have a strong sense of financial self-efficacy by focusing their attention and motivation on understanding the decision-making process in various investment avenues for gaining financial outcomes leading to the psychological aspect of life satisfaction and financial behaviour towards achieving investment performance [6]. A report from the Organization of Economic Cooperation and Development [OECD], 2022, states that over 70 countries and economies framed or implemented national financial educational strategies by May 2020 by understanding the significance of personal financial efficacy [7]. The studies conducted by the OECD highlight the need to focus on the rising economic role of households and changes in their financial behaviour by conducting multi-faceted studies to understand their impact on economies and overall

well-being [8]. Various theories on studying the confidence of individuals were formulated to guide the interconnection and uplift the money management skill of individuals by understanding their financial behaviour. The social cognitive theory states that financial efficacy is influenced by individual motivation and financial behaviour framed by one's cognitive guidance within their mind [9]. Individuals learn from the experiences of their surroundings. The individual's financial behaviour influences their financial literacy, which in turn reflects financial self-efficacy [10]. Increased financial literacy of individuals alone won't provide the required confidence or belief in making financial decisions. People with prior knowledge and understanding of the finance and investment processes of the capital market still lack the confidence to take the necessary steps in investing [11]. This is reflected by the lack of understanding of basic concepts, unfamiliarity with financial management, and various financial choices [12]. A proper understanding of concepts can lead to confidence in making financial decisions. This paves the way for efficiency in managing budgeting, savings, investing, and overall decision-making. Financially sophisticated individuals are said to be less influenced in financial decision-making [13]. Individuals and households are the ones who are highly prone to financial burdens because they live from pay-check to pay-check [14]. This situation is mainly due to factors that affect the individual's financial well-being like income volatility, unexpected expenses, and lack of savings [15]. A well-planned decision can lead to the timely achievement of financial goals and the management of financial commitments [16]. The allocation of funds for meeting various financial obligations is directly linked with individual financial knowledge, financial attitude, and financial behaviour. This directly influences financial satisfaction and improved psychological and financial well-being [17]. Continued financial burden can hinder their personal life as well as their economic life. In a volatile economic climate personal financial management has evolved from a desirable skill to overall well-being [18]. The current aims to study review the current state of financial self-efficacy by conducting a comprehensive study using bibliometrics and Systematic mapping to understand how has the field of financial self-efficacy evolved in terms of scientific production, citation impact, authorship patterns, geographical distribution, and thematic focus, and what are the emerging trends and potential areas for future research. To review this research problem, we have addressed the following research questions through our study:

RQ1: What is the present status and track patterns of scholarly publications, publication channels, and citations' impact on financial self-efficacy?

RQ2: Who are the prolific authors and what are the trending patterns of their productivity and collaboration in this field?

RQ3: What is the geographical structure of the research in the field of financial efficacy, and what are the most frequently used keywords and conceptual framework in this field?

RQ4: What are the current trends, thematic areas, knowledge gaps, and potential future research directions in this research area?

2. Material and Methods

The present study employs systematic mapping and bibliometric analysis to answer the research questions spanning tri-decade data. Though financial situations keep evolving, it is valuable to study for thirty years to get insights into the long-term trends and potential paradigm shifts to know the significant changes in financial markets, regulations, and consumer behaviour. Figure 1 demonstrates the approach adopted in the study; it portrays the five-step process used in the research framework. Initially, the study defines the field of study precisely, then strategically decides the search platform from which the data will be extracted by framing the inclusion and data cleaning exclusion strategy. The cleaned data were imported into Bibliometrix- R programming and VOS viewer. Once the data were imported, results were interpreted based on the tables and maps by restricting the studies to research questions. Studies were limited within the boundaries of financial efficacy for the investigation. The search platform adopted for the data extraction is the Scopus database. It is considered to be a trustworthy source where the data and metrics can be used to arrive at notable insights on the institutions, authors, and research sectors [19]. The data collected from the Scopus database were taken by the screening method Preferred Reporting Items for Systematic Reviews and Meta-Analyses which is generally addressed as PRISMA. It systematically pulls out the data using the PRISMA flowchart protocol [20], and the extracted data were refined by systematically reading the title and abstract. The entire data extraction and refinement process is depicted in Figure 2.

2.1 Data extraction process
The data extraction process is designed in a two-step approach. In the initial stage, according to the PRISMA 2020 protocol, from the whole database,
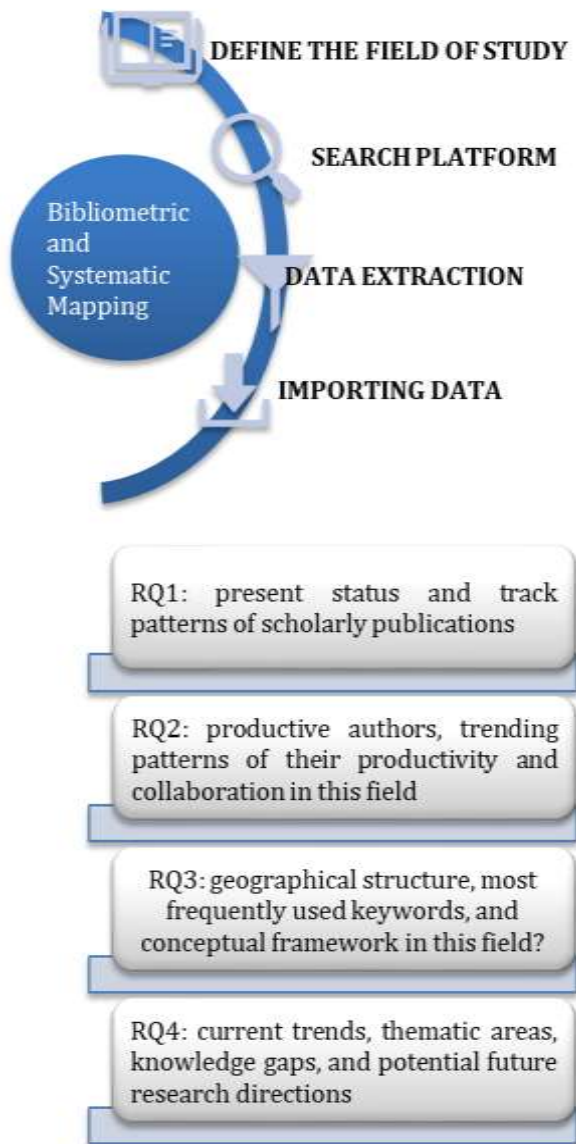
Figure 1. Research outline

the data that does not fall under the inclusion norms has been excluded [21]. Inclusion norms were framed to make the study focused, relevant, and high-quality as portrayed in Table 1, and subsequently in the next step extracted data are refined through thorough revision of the title and abstract scrutinization using the exclusion criteria. The norms taken for the exclusion are portrayed in Table 2. The inclusion norms divided the first step into different stages where data will be identified based on the strings of keywords and Boolean operators from the Scopus database. The string adopted TITLE-ABS-KEY ("financial self-efficacy" OR "financial self efficacy" OR "Financial Efficacy" OR ("Self efficacy" AND ("financial literacy" OR "financial behavior" OR "financial well-being" OR "financial well being"))) [22], from abstracts, title, and keywords of the article. Through the first stage of identification by strings, the data retrieved was 326. From the extracted data the researcher dissected

the data in various levels by delimiting the data based on the inclusion criteria "Period= 1994-2023", "Limiting Area = a) Economics, Econometrics, Finance, b) Business, Management, Accounting, c) Social Sciences, d) Psychology, e) Arts and humanities f) Multidisciplinary", "Document type= Conceptual and Empirical papers and review", "Language= English". Data were partially restricted to 216 data from the Scopus filtration process through screening. The taken data are made eligible for the next step of reviewing. In the second stage of data extraction researcher will review whether the data are kindred to financial efficacy by diligently reading the abstract and title. Exclusion Norms (EN) (table 2) threshold the refinement process criteria used for cleaning data in this stage. Exclusion Norms are mentioned as EN-1 and EN-2. The studies that portray the financial efficacy of individuals are taken in EN-1 and it is mentioned as "relevance". The data that does not study the financial confidence of the individuals in dealing with finance are omitted. Subsequently, EN-2 excludes the studies that do not provide all the necessary information for the bibliometric analysis. This screening phase resulted in the exclusion of 15 articles that were initially identified. For the subsequent investigation, the researcher opted for a dataset with 201 articles for further bibliometric analysis and systematic mapping.

3. Results and Discussions

Data analysis and interpretation

The study imported data to the analytical tool R-package bibliometrix and its shiny web interface biblioshiny [23] and VOS viewer [24]. It helps to depict an outline of the whole data to view the overall performance and its rational structure [25]. The notion of financial self-efficacy which is a person's belief to succeed has evolved from a theory proposed by Bandura in the year 1977 and subsequently refined in the year 1997, the theory indicates that attaining the awareness and understanding of meeting financial obligations to achieve monetary targets refines and improves the individual money management [26], [27].

3.1 Primary Data Statistics

The primary data statistics portrayed in Table 3 are based on the data extracted from the biblioshiny R-programming package. It explains the period, sources, documents, and author details in a gist. The study intended a period of three decades spanned from 1994-2023. However, due to the lack of

***Table 1.** Inclusion Norms (IN) used for data extraction*

| IN-1	Key terms	("financial self-efficacy" OR "financial self efficacy" OR "Financial Efficacy" OR ("Self efficacy" AND ("financial literacy" OR "financial behavior" OR "financial well-being" OR "financial well being")))
IN-2	Period	1994-2023 (3 decades)
IN-3	Limiting Area	Limited to Economics, Econometrics and Finance, Limited to Business, Management and Accounting, Limited to Social Sciences, Limited to Psychology, Limited to Arts and Humanities, Limited to Multidisciplinary.
IN-4	Document Type	Limited to Conceptual and Empirical paper Limited to Review Papers
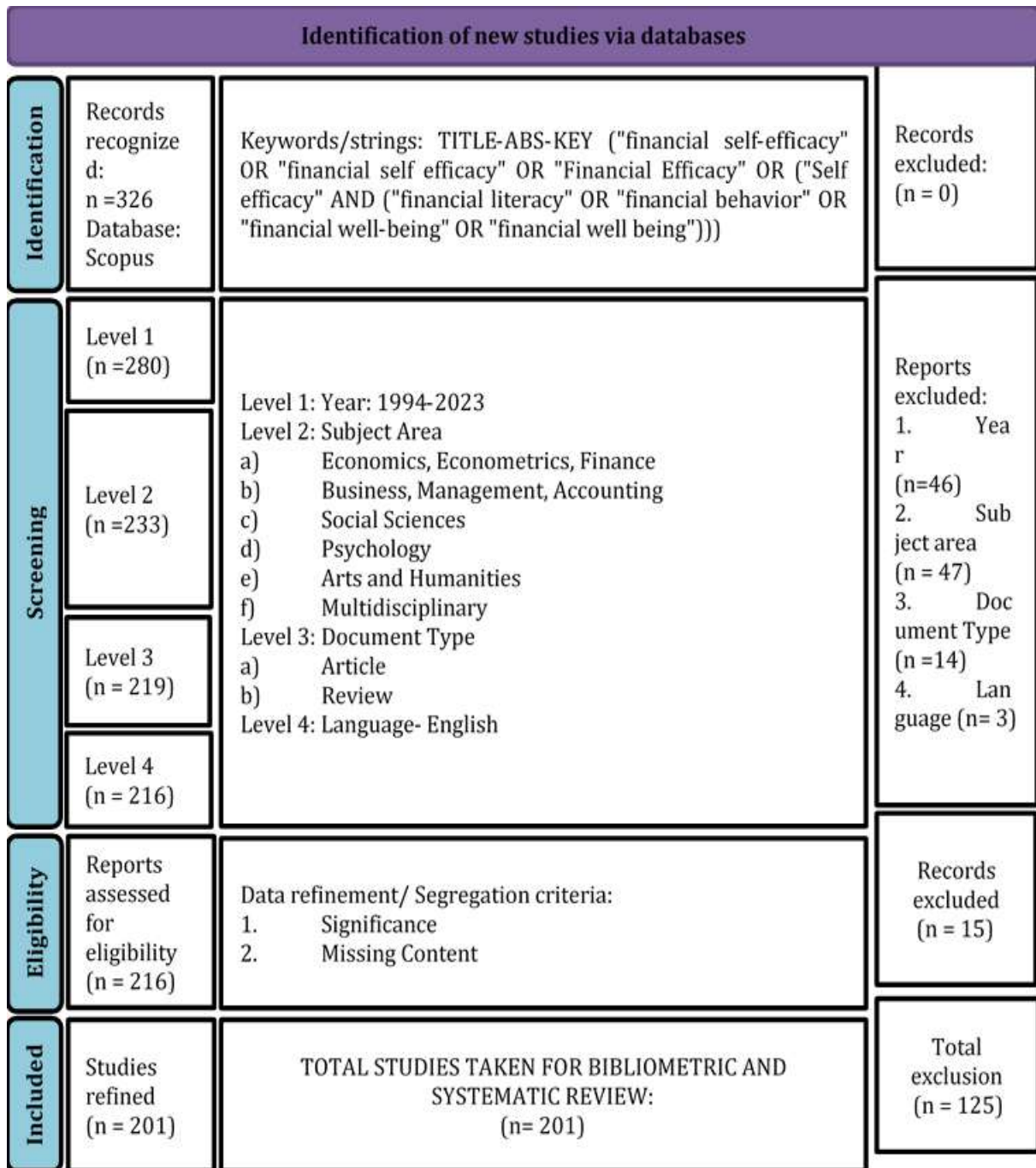
***Figure 2.** PRISMA protocol*

Table 2. *Data extraction exclusion norms.*

EN- 1	Relevance	Studies that are not related to financial efficacy are excluded
EN-2	Missing Content	Data that has missing contents are excluded.

Table 3. *Metadata*

Description	Result
Duration	1996:2023
Sources (Journals, Books, etc)	121
Documents	201
Yearly Progress Proportion %	14.19
The mean period of documents	4.62
Mean citations per document	21.16
Total References	11859
DOCUMENT CONTENTS	
Index terms/ Keywords Plus (ID)	301
The author assigned Keywords (DE)	547
CONTRIBUTORS/ AUTHORS	
Authors	550
Authors of single-authored docs	19
AUTHORS COLLABORATION	
Sole-authored documents	20
Co-Authors per Document	3.39
International co-authorships %	20.9
DOCUMENT TYPES	
Research article	191
Review	10

Source: Bibliometrics-Biblioshiny

binding with the data extraction criteria articles published in 1994 and 1995 were excluded during the initial extraction. Consequently, as shown in Table 3, the actual timespan of the study conducted ranges from 1996-2023. Further, it was found that the data were collected from 121 sources within these 3 decades which confined 201 documents. Out of this 191 are articles and 10 are review papers. Which is authored by 550 authors of which 19 authors wrote single-authored articles.

3.2 Article Systematic Production

Analysis of data over the years portrayed shifting phases of the financial self-efficacy study. In the tri-decade period, the initial studies began in 1996. The trend in the scientific production and its citation count are depicted in Figure 3 demonstrating the annual scientific production variations over time. This variation in trend can be segmented into 3 different phases: long-term downturn, initial growth, and Rapid acceleration. From 1996 to 2015 which is nearly 2 decades there was a long-term downturn with the scientific output relatively low and stable, it rarely exceeded 5 articles per year, which is just 11.44% (23/201) for roughly two decades. This can

reflect limited funding, lack of research interest, or institutional support in this period. In this phase referring to the global context there appears a stagnation in the year 2008-2009 it points towards the global financial crisis which led to a slight dip and the subsequent recovery in that period [28]. Moving to the next phase of initial growth 2016-2018 there is an uptick in production to 23 in total which is the total of the last 2 decades of scientific production. This might correlate with the increased fund availability post-global financial crisis, shift in the institutional focus, or the growing interest in the research area. In the third phase of Rapid Acceleration 2018-2023, Crossing 2018 the growth rate shot so high that it reached up to 35 articles per year by 2023. In the year 2020, there was a slight drop due to the COVID-19 pandemic's initial impact but subsequently, in the following years 2021-2022, studies have risen rapidly to the highest compared to all previous years. Through a systematic analysis of data, it was observed that nearly 77.11% (155/201) of research related to the field of financial efficacy was done in the last five years which directs toward the growth in the studies related to behavioural finance for individual money management. This has shown the growing relevance and significance of the study in the minds of researchers due to the economic situation and technological advancements [29]. Further analysis by comparing articles with the total citations shows that the articles published in 2014 have the highest citation and then over the years a steady decline in the count of citations has taken place.
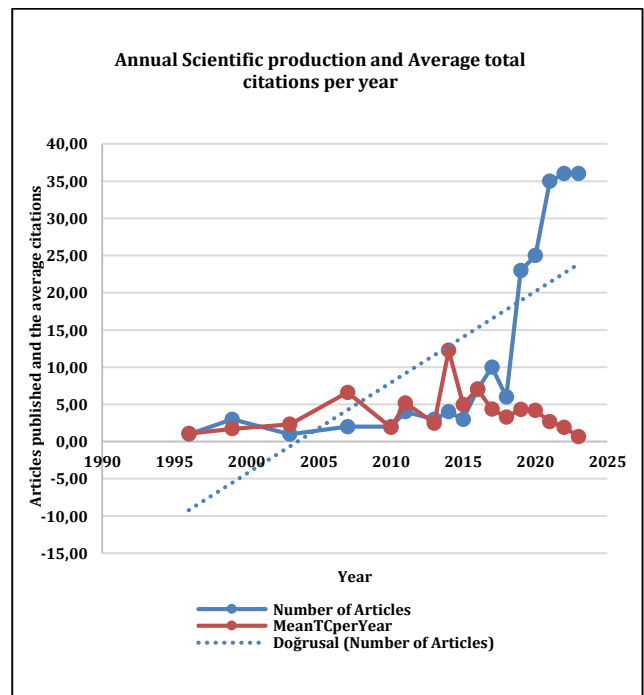

Figure 3. *Scientific production and total citation of articles*

3.3 Citation Analysis of Articles

Articles related to financial self-efficacy are tabularised based on the citation count and Page rank. Citations are often taken as a measure of research quality and their impact. It reflects the scientific influence and quality addressed through several decades of research [30]. Citation count portrays the frequency of articles cited by other authors, the increased frequency shows the influence or productivity of articles. This states that the popularity is measured in citation analysis whereas the page rank measures the prestige of articles [28]. The citation analysis using VOS viewer showed that out of 201 documents, 124 items are connected through citations to each other which is 215[31]. Followed by Lim (2014) with 30 interlinks and 148 citations [32].

Based on the demonstration of Table 4, The highest global citation is for Xiao J, 2014 [33] with 279 global citations, followed by Farrell L., 2016 [31] with 215 and Danes SM, 2007 [34] with 174. Table 4 portrays the top articles based on their global influence, local influence, and page rank. Global citations are the number of times other works across all databases and research fields cite an article. Local citations, on the other hand, count the citations received within our research field of 201 articles [35]. In this regard, the article published by Farrell L's 2016 [31] received the most local citations with 62 counts, followed by Lown JM's, 2011[36] article with 56 and Danes SM's 2007[] article with 33 local citation counts. Further analysis of Co-cited articles based on page rank analysis shows that highly prestigious articles referred to in the field of study by the authors are the studies of Bandura A published in the years 1997, 1991, and 1986[37],[38],[39]. These are considered to be highly significant articles in the field of financial efficacy. These articles explain the theory of Social Cognition where people learn by observing others and their environment. The theory mainly focuses on mutual give-and-take behaviour like conceptions, judgment, and motivation [39]. However, articles of Bandura A are not under the top 10 globally and locally cited documents. However, the significance of the study conducted by Bandura A is portrayed through page rank which denotes its prestige.

3.4 Most Relevant Authors

Authors' productivity is the sum of the papers published by an author within a time frame [52]. Figures 4 and Table 5 demonstrate the top 10 prolific authors in the financial efficacy research domain. Figure 4 portrays the articles published by the top authors over the years whereas Table 5 reflects the metrics which will illustrate the productivity of authors. The metrics used for the study are h-index, g-index, m-index, total citation, and Number of Publications. These metrics can be divided into author-level metrics and publication-level metrics. Here, h-index, g-index, and m-index are author-level metrics. The h-index portrays the effect of researchers' contribution to the research field or the measure of influence. However, the m-index is a variation of the h-index that allows the comparison of researchers with different career spans by analysing the productivity of authors based on their first publication year. The total publication years plus one divided by the h-index will provide us with the m-index. It also states that the ideal m-index should be less than 1. On the other hand, the g-index validates the researcher based on the calculation of the relationship between published articles and their level of citations receiving at least g2 citations portraying the level of impact [53], [54].

The analysis of the demonstration of Figure 4 and Table 5 points that the leading contributor in the study area of financial self-efficacy is Asebedo SD, the author has published 7 articles between 2018 and 2022 with a total citation of 107 and has an h-index metrics of 5, which shows that a sum of 5 articles has citations more than 5. Subsequently, Rahim HA and Sabri MF with 5 publications from 2020 to 2022, have a citation count of 68 and an h-index of 4. Among the top 10 authors, Groth-Marnat G is the pioneer in this period of three decades as he started research in the field in 1996. Additional metrics analysis shows that all the authors contribute significantly to the research field as all the top listed contributors have an m-index of less than 1.

3.5 Lotka's Law

Lotka's law of authorship is a principle in scientometrics that explains the distribution of scientific productivity among the authors in the
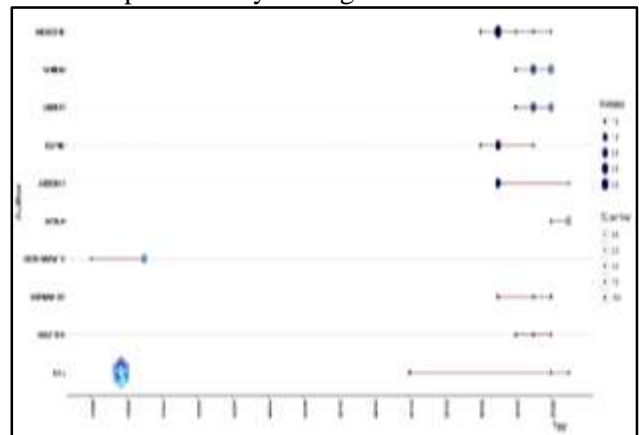

Figure 4. *Authors Production of documents over the period*

Table 4. *Top scientific production journals*

ARTICLE	GC	LC	ARTICLE	LC	GC	Cited Reference	PAGE RANK
Xiao J, 2014[40]	279	1	Farrell L, 2016[31]	62	215	Bandura A. 1997[37]	0.047707695
Farrell L, 2016[31]	215	62	Lown JM, 2011[36]	56	170	Bandura A. 1991[38]	0.017184533
Danes SM, 2007[34]	174	33	Danes SM, 2007[34]	33	174	Bandura A. 1986[39]	0.007751064
Lown JM, 2011[36]	170	56	Lim H, 2014[32]	26	148	Dietz B.E. 2003[45]	0.023118245
Shiau W-L, 2020[41]	168	1	Dietz Be, 2003[45]	26	51	Montford W. 2016[43]	0.024990254
Lim H, 2014[32]	148	26	Montford W, 2016[43]	20	92	Asebedo S. 2019[49]	0.017752713
Danes SM, 1999[42]	99	1	Amatucci Fm, 2011[46]	15	63	Forbes J. 2010[4]	0.02143775
Xiao JJ, 2014[40]	95	7	Chatterjee S, 2011[47]	15	27	Amatucci F.M. 2011[46]	0.014576269
Montford W, 2016[43]	92	20	Rothwell DW, 2016[48]	13	52	Netemeyer R.G. 2018 [50]	0.017828996
Akhtar F, 2019[45]	77	6	Asebedo S, 2019[49]	12	46	Tokunaga H. 1993[51]	0.017075721

Table 5. *Metrics and Net Publication of Top Authors*

Element	h-index	g-index	m-index	TC	NP	PY-start
ASEBEDO SD	5	7	0.714	107	7	2018
RAHIM HA	4	5	0.8	68	5	2020
SABRI MF	4	5	0.8	68	5	2020
SEAY MC	4	4	0.571	90	4	2018
GROTH-MARNAT G	3	3	0.103	67	3	1996
HOFFMANN AOI	3	3	0.5	61	3	2019
KAGOTHO N	3	3	0.6	29	3	2020
KIM YK	3	3	0.6	29	3	2020
LIM Y	3	3	0.6	29	3	2020
MALEKU A	3	3	0.6	29	3	2020
TC= Total Citation, NP= Number of Publication, PY-start= Previous year start						

study area. Alfred J. Lotka is the pioneer of this concept. This law provides a platform to analyse the variation between the actual and expected productivity of authors over a specified year in a particular area of study [55]. This law highlights that the authors who produce a higher research output are comparatively fewer in number compared to the majority of authors who contribute a higher number of articles but with relatively little research output [56]. Furthermore, through the analysis, it was identified that out of 550 authors, substantially 450 authors, 82% (round off) have published 1 article each. And 77 authors which is just 14% have written 2 documents and just 1 author which is just 0.2% of the total authors has published 7 articles on financial self-efficacy. Figure 5 demonstrates Lotka's Law by representing the distribution of the author's productivity in the given dataset. The axis represents the x-axis with the number of articles written by an author, and the y-axis represents the percentage of it Figure 5 slopes downward indicating that the.
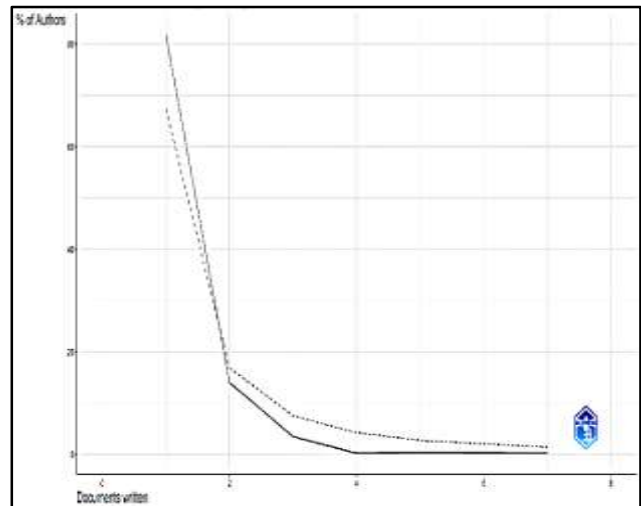

Figure 5. *Lotka's Law indicating Author productivity*

3.6 Core Journals

number of authors who produce more articles in the same field is less whereas the number of authors who produce fewer articles is more that is around 80%.The inspection found that 201 articles were published through 121 sources. Among them, the top 10 sources are listed in Table 6. The top 10 journals have published 70 articles, representing 35% of the data. In this, the highest number of articles were published by the Journal of Financial Counselling and Planning, which is 16, followed by the International Journal of Bank Marketing, which has 10 articles. Of these ten journals, five are Q1 journals, two are Q2, two are Q3 and one is Q4 journals. 'Q' represents Quartile ranking, it ranks the best journals based on the research findings and their impact on the market this reflects as a criterion to judge the author's and scholars' work based on citation metrics [57].

3.7 Bradford's Law

In 1934, Samuel C. Bradford introduced a concept presenting information dispersal within specific subjects. Bradford's law is also known as Bradford's law of scattering and Bradford distribution, it has exposed a pattern where the references were scattered across different journals into three equal groups (zones)[58]. The scatter of reference has formed distinct patterns where each zone has an equal number of citations, and the size of the zone is equal to the number of journals in that zone [59]. Bradford's law demonstrates "Diminishing productivity". As it moves from zone 1 to zone 3 the relevant information will keep decreasing.
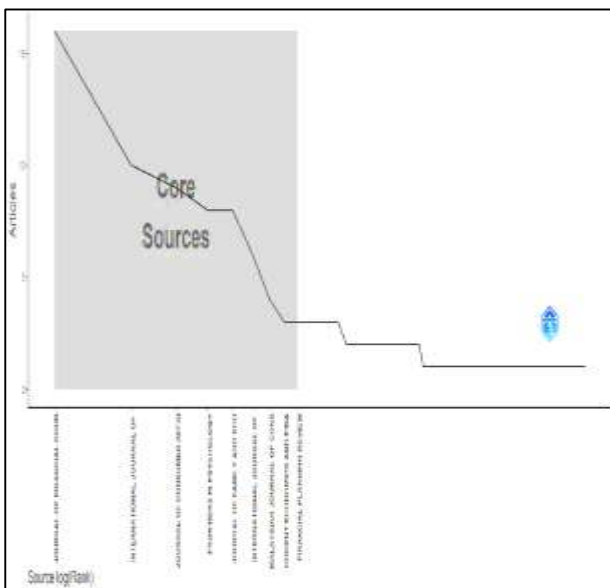

Figure 6. *Core sources based on Bradford's Law*

Analysing Figure 6 elucidates that there are 9 core journals in zone 1, related to financial self-efficacy as represented in the biblioshiny results. The journals identified are the Journal of Financial Counseling and Planning, International Journal of Bank Marketing, Journal of Consumer Affairs, Frontiers in Psychology, Journal of Family and Economic Issues, International Journal of Consumer Studies, Malaysian Journal of Consumer and Family Economics, Cogent Economics and Finance, Financial Planning Review. These journals give more relevant information than non-core journals for the current study arena.

3.8 Affiliations Production

Publication trends by affiliated universities demonstrated in Table 7 portray that Universiti Putra Malaysia is the most productive in this field, with a cumulative 22 articles by 2022. Research in this field started in 2020 with 2 articles, followed by a significant increase to 12 articles by 2021, reaching 22 as the total cumulative publication of the university. This university is located in Malaysia Southeast Asia. Texas Tech University takes the second spot with a cumulative total of 16 articles by 2023. Notably, for a long period, research on financial self-efficacy began at this university starting with 1 article in 2011, and has continued consistently over the last decade showing a long-term commitment to the field based in the USA. Similarly, the next highest in the line Washington University in St. Louis Brown School is also from the USA. This university comes in the third position with 15 publications by 2023.

3.9 Countries Production of Articles

Demonstration from Table 8 shows that small core publications result in a larger set of significant literature in the given field. Applying Bradford's law in the articles published in different countries we can divide the countries into three zones. The core zone with the highest scientific production of articles is done by the USA with 249 articles over three years on financial self-efficacy which is 45.3%, Zone 2 is considered as Malaysia with 73, India with 45 articles, China with 38, and Pakistan with 30 publications. From zone 2, we have got 186 publications which is 33.63%. In zone 3 we have included the rest of the countries: Australia with 28, the United Kingdom with 25, the Netherlands with 24, Indonesia with 21, and Uganda with 20. From zone 3, we have 118 publications, proportionated as 21.34%. It shows that studies on financial self-efficacy are more in the USA which reflects their

Table 6. *Top Scientific Production jounals*

SOURCES	ARTICLES	SJR 2023	QUARTILE	PUBLISHER	H-INDEX	TYPE OF ARTICLE PUBLISHED
Journal of Financial Counseling and Planning	16	0.41	Q3	Springer Publishing Company	52	Empirical, experimental and Scale development articles
International Journal of Bank Marketing	10	1.33	Q1	Emerald Group Publishing Ltd.	104	Empirical and experim ental
Journal of Consumer Affairs	9	0.66	Q1	Wiley-Blackwell	74	Empirical and theoretical
Frontiers in Psychology	8	0.8	Q2	Frontiers Media Sa	184	Empirical, review and theoretical
Journal of Family and Economic Issues	8	0.72	Q2	Springer International Publishing Ag	56	Empirical and experimental
International Journal of Consumer Studies	6	2.02	Q1	Wiley-Blackwell Publishing Ltd	98	Empirical
Malaysian Journal of Consumer and Family Economics	4	0.17	Q4	Malaysian Consumer and Family Economics Association	8	Empirical, review, case studies and theoretical
Cogent Economics and Finance	3	0.43	Q3	Taylor and Francis Ltd.	37	Empirical, review, case studies and theoretical
Financial Planning Review	3	1.13	Q1	Wiley-Blackwell	53	Empirical, review, case studies, literature reviews and theoretical
Journal of Economic Psychology	3	1.4	Q1	Elsevier B.V.	118	Empirical, review, case studies, literature reviews and theoretical

Table 7. *Ranking of Affiliation Production*
Note: FPY= First Article Publishing Year, LPY=Last Article Publishing Year

Rank	Affiliation	Country	Articles	FPY	LPY
1	Universiti Putra Malaysia	Malaysia	22	2020	2022
2	Texas Tech University	United States of America (USA)	16	2011	2023
3	Washington University in St. Louis Brown School	United States of America (USA)	15	2022	2023
4	Guangdong University of Finance	China	11	2019	2021
5	The Ohio State University	United States of America (USA)	10	2019	2022
6	Rutgers University	United States of America (USA)	8	2013	2022
7	Universiti Malaysia Terengganu	Malaysia	8	2020	2021
8	Balochistan University of Information Technology Engineering Management Sciences	Pakistan	7	2022	2022
9	University of Oxford	United Kingdom	7	2018	2020
10	Kansas State University	United States of America (USA)	6	2019	2022

complex financial system. the frequency of articles related to financial efficacy produced worldwide is still in its infancy. Still, studies are to be increased proportionately in other countries worldwide to study the confidence or self-assurance in managing money.

Table 8. Country-wise scientific production

SL NO.	REGION	COUNTRY	N	%	TC	AAC
1	America	USA	249	45.03	1482	29.1
2	Asia	Malaysia	73	13.20	76	7.6
3	Asia	India	45	8.14	111	8.5
4	Asia	China	38	6.87	264	33
5	Asia	Pakistan	30	5.42	57	8.1
6	Australia	Australia	28	5.06	295	36.9
7	Europe	United Kingdom	25	4.52	76	15.2
8	Europe	Netherlands	24	4.34	168	28
9	Asia	Indonesia	21	3.80	18	9
10	Africa	Uganda	20	3.62	81	40.5
		TOTAL	553	100		

Note: N=Frequency, AAC=Average Article Citations

Table 8 portrays the analysis of the scientific production of the top 10 countries based on the frequency of articles published, total citations, and average article citations. This analysis demonstrates that the USA has the highest frequency of articles published. The difference is 3.41 times higher than in Malaysia. Analysing the countries based on total citations shows that the total citation of the USA is 1482 and Malaysia is 76 which is 19.5 times higher than Malaysia. This points towards the gap in conducting research on financial efficacy in other parts of the world. Additionally, analysing Figure 7 and Table 8 shows that out of the top 10 cited countries, 9 countries are listed as the top countries producing scientific articles. Out of these top 10 countries African country has got highest average citation. Implications from the collaboration reflect those countries with high impact but with low frequency like Uganda, and Australia will benefit from the collaborations to increase their output. Similarly, countries with high frequency but with lower impact like Malaysia and India might focus on improving research quality and relevance. Analysis based on the country collaboration mapping as portrayed in Figure 7 demonstrates that the highest collaboration hub occurred in the USA with Canada, then China and then with Uganda with a frequency of 3 articles for each collaboration. Subsequently, countries like China collaborated with Pakistan, and India collaborated with Australia, producing 2 articles for each collaboration.

3.10 Keyword Co-occurrence Analysis
The study conducts an inter-relation analysis of the keywords through overlay visualisation in a VOS

viewer. Figure 8 demonstrates the author keywords that have co-occurred a minimum of 3 times which shows that out of the 543 keywords, 42 keywords meet the threshold. Keywords are connected through nodes. The size of the node represents the frequency of keywords used. The bigger the nodes the frequency is also higher. Towards the right corner, a colour bar indicating the periods is placed. The earlier periods are pointed out with violet colour and recent studies are portrayed in yellow. Through the thorough scrutiny of Figure 8, it implied that financial self-efficacy has the highest occurrence with 74 occurrences and its link strength is 107, in addition, the colour of the financial self-efficacy node indicates the period where the study became significant. Financial self-efficacy is coloured in yellow representing that the trend is higher even in this contemporary era. Followed by financial self-
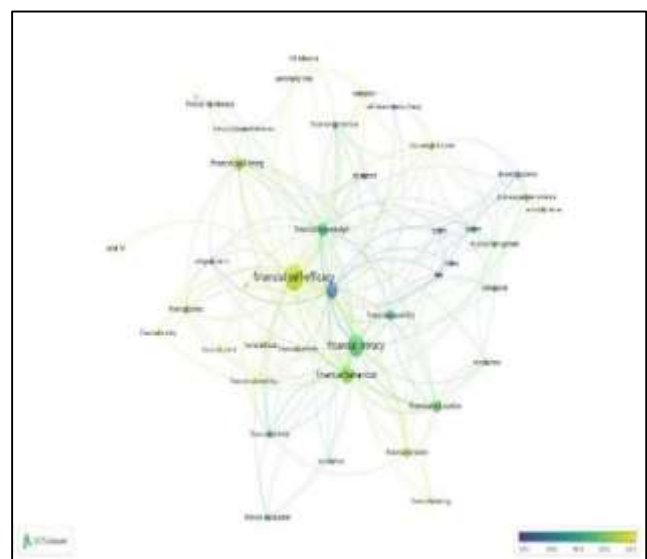

Figure 7. Country Collaboration

Figure 8. Keyword occurrence analysis

efficacy the next highest co-occurrence is by financial literacy with 51 and financial behaviour by 33. Focusing on the central node financial self-efficacy demonstrates that the reach of financial efficacy is widespread over different periods reflecting its relevance. The width and nearness between the nodes show how frequently studies were conducted in this area. This shows the key areas that are mostly studied in financial efficacy. As per the illustration of the figure the most frequently researched topics along with financial self-efficacy are financial literacy, financial behaviour, financial knowledge, financial well-being, and financial capability and rarely explored topics in this field are economic abuse, risk tolerance, financial socialization, COVID-19, personality traits and financial anxiety indicating potential research gaps and need for interdisciplinary studies like personality traits and financial anxiety. The studies points that the current body of studies related to financial self-efficacy interacts highly on the core financial competencies and outcomes. This shows the need to research financial efficacy with economic, psychological and socially influential factors to upgrade our understanding and develop more effective interventions.

3.11 Conceptual Structure Model

Figure 9 demonstrates the factorial analysis of financial self-efficacy using the Multiple Correspondence Analysis (MCA) technique to examine the keywords that are used by the authors in this field. The advantage of using the MCA technique is that it combines the information from multiple keywords resulting in the formation of a two-dimensional map that visually represents how these keywords relate to each other [60]. The conceptual structural map analysed the top 20 occurring keywords divided into two clusters. The main cluster is coloured blue. The map reveals the key areas in this research field, the key terms that are positioned in the center are partitioned by an axis highlighting the core area of the field of study. The variables that are placed in the core area of the first cluster are "financial efficacy", "financial literacy", and financial education. Alongside these variables, other significant keywords include self-efficacy, financial behaviour, financial knowledge, financial education, financial well-being, financial capability, financial inclusion, financial stress, financial attitude, and financial satisfaction are distributed. These keywords indicate that knowledge, confidence, and capability are important factors for achieving financial efficacy. The alternative cluster is coloured in red indicating that fewer studies are

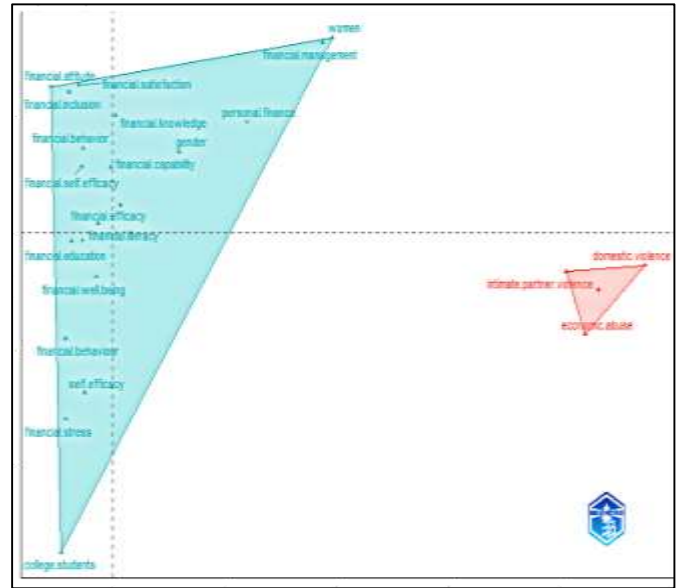conducted in those areas. Those 3 keywords are economic abuse and domestic and intimate partner violence.

***Figure 9**. Conceptual structure Map (MCA)*

3.12 Three field plots

Visualisation of the three key components can be effectively done through (Sankey diagrams) three field plots. Figure 10 demonstrates the interrelations of the top 15 countries, cited keywords, and authors in this field of study. This diagram portrays the density of connections between nodes, revealing the interplay among related articles from various countries, frequently cited terms, and leading researchers in the field.
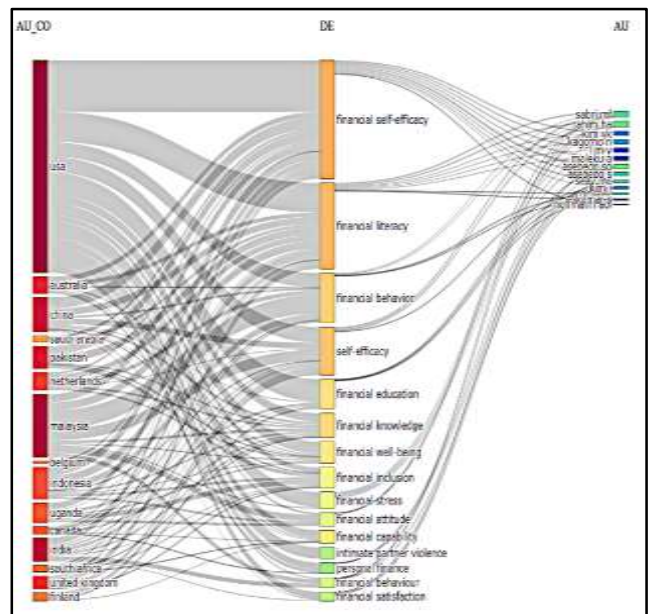

***Figure 10.** Three field plots*

This representation helps us in a clear analysis of the proportional links between the three elements. In the given figure countries are shown in the left area, the most cited and prominent keywords are in the middle, and the most prolific authors are in the right area side. Through the depiction of the diagram, it was found that the country that has felt the relevance and published most articles on financial self-efficacy is the USA and most of the authors and the highest productivity are also from the USA.

3.13 Thematic Mapping

The study conducted a thematic mapping analysis using Biblioshiny -R programming demonstrated in Figure 11. Based on the Development degree and relevance degree, the themes are partitioned into 4 segments Niche, Motor, basic, emerging or declining. For the analysis of the study, the top 30 words with a minimum cluster frequency of 5 are included. Among these themes, the Niche themes are explored relatively less here in the survey two clusters are formed in niche themes. The first cluster is the COVID-19 cluster, and the second cluster set includes gender, adolescents, and debt. This theme states that clusters in the theme were highly significant in the past economic scenario, but later their relevance had a diminishing tendency.

The second theme is the Motor theme this theme pinpoints the future scope of this study domain. In this study, intimate partner violence, domestic violence, and economic abuse form a cluster addressing the need for future exploration in this study sector.
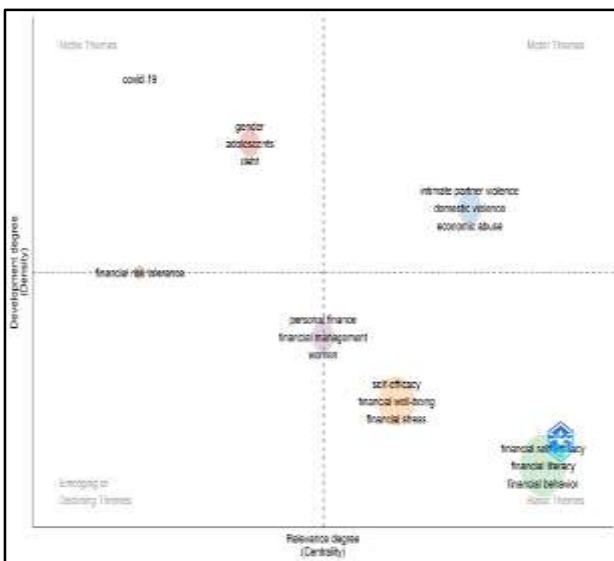

Figure 11. Thematic mapping

The third theme is Emerging or Declining implying the relevance is higher but the density is relatively less. This states that the importance of conducting

studies on those areas is significant but the number of studies conducted is relatively less. Two distinct clusters were identified under this theme, placed in the imaginary axis formed through the analysis. The first cluster includes personal finance, financial management, and women. And the alternative cluster set has financial risk tolerance. These two clusters are in the imaginary partitioning lines, where the probability of variance of increasing or decreasing their future research scope is high.

The fourth theme is the basic theme. It highlights the potential areas for future research. The relevance of studying this area is high but the number of papers published is currently limited. They offer future avenues for exploration. Two primary clusters emerged within this theme. The first cluster includes financial self-efficacy, financial literacy, and financial behavior and the second cluster includes self-efficacy, financial well-being, and financial stress. It shows that the number of research conducted on the interrelation of these variables is comparatively less. Henceforth, scholars, policymakers, and other stakeholders must incorporate more studies to foster responsible financial behaviour and financial literacy of individuals to improve decisions making skills.

3.14 Trend topics

Figure 12 demonstrates the evolution of research focus over the period in the field from 2007 to 2022. This period is segmented for the study based on the top 10 highly researched topics. In the most recent period from 2019 to 2022, the prominent issues researched were financial efficacy with 68 articles, financial literacy with 51 articles, and financial behaviour with 33 articles. Among the top three variables, there is a significant variation in the proportion of studies conducted. This directs the gap towards conducting more studies to equip the individuals to decide over the different financial choices and improve their financial health by reducing financial stress and improving their overall well-being. The trend diagram demonstrates the areas that are researched in the field of financial self-efficacy studies from 2016 to 2021. Initially, research concentrated on individual self-efficacy, where the self-assurance of individuals in achieving the results was at prime focus. Over time, the significance of incorporating finance into self-efficacy studies became apparent, leading to a shift toward financial self-efficacy. This transition resulted in understanding the concept of allotting funds confidently to various sectors resulting in effective financial decision-making. Gender was a major research theme for almost a decade, from 2007 to 2016.
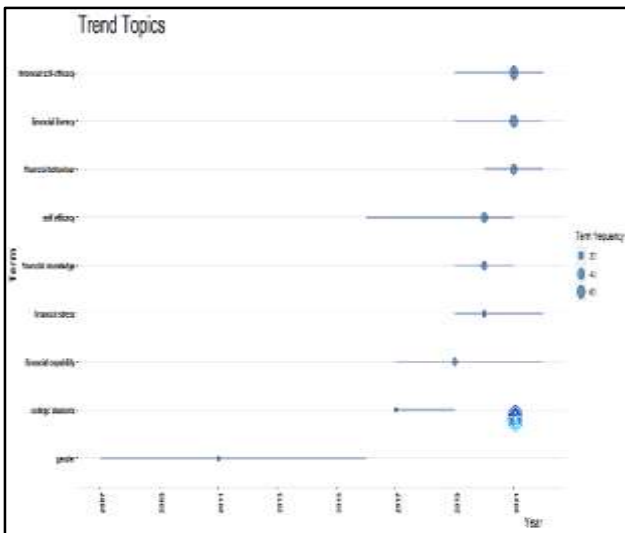
***Figure 12.** Trending areas of financial self-efficacy*

4. Discussion and Future Direction

The study reveals significant perceptions in the present field of financial self-efficacy through systematic mapping and bibliometric analysis. This section discusses the key highlights, research gaps, and future implications for further studies.

The study has indicated a clear route in the study of financial efficacy over the period. Initially, the study in the area of financial self-efficacy was sparse. Over that period the studies were mainly concentrating on the self-efficacy of individuals. Towards the modernistic period, variable finance was also felt as a significant component of conducting study combined with self-efficacy, and that merger formed financial self-efficacy. The study revealed that the most frequently studied topics within this field are financial self-efficacy and financial literacy and the study demonstrated strong interconnections between improved financial satisfaction, behaviour, and outcomes. In addition, the studies depicted that financial efficacy plays a vital role in shaping individuals' attitudes toward savings and investments, particularly toward risk tolerance. Several studies in the analysis have highlighted gender disparities in the study of financial efficacy. The studies revealed that a major part of the women was vulnerable in managing the risk associated with their investments. These findings underscore the significance of the targeted interventions and further research into the underlying causes of these differences. Additionally, the study identified economically disadvantaged women, college students as disadvantaged populations and they can benefit from the financial literacy programs and that can minimise the effect of economic abuse and increase financial independence in facing financial situations.

Further exploration revealed that the technological adoption in the field of financial efficacy is in its emerging field specifically in the context of fintech. The study suggests that financial efficacy influences the perception of fintech usefulness and intentions to use technologies in the financial sector with self-assurance and confidence. This relationship provides a landscape for further investigation of the rapidly evolving financial technologies research arena.

The study analysis highlights the importance of educational interventions in improving the financial efficacy among various target groups. Moreover, the literature analysed prioritises the role of parents in framing the financial attitudes and practices among children which suggests that financial education should be extended beyond individual interventions to encompass family-based approaches. The findings of this review have significant implications for financial counsellors, educators, and policymakers. These professionals should consider financial efficacy levels as an important criterion while providing guidance or designing interventions. Furthermore, the study analysis revealed the urgency to shift the focus from mere imparting of financial knowledge to overall financial well-being through the development of financial self-efficacy.

The body of literature on financial efficacy is in the rapid acceleration phase, despite being in the growing stage several research gaps remain in this field. The study analysis suggests further exploration of the inter-relationships of the key variables such as self-efficacy, financial well-being, financial stress, financial literacy, and financial behaviour. Furthermore, the study suggests longitudinal studies in this field for a better understanding of the long-term effects of financial efficacy interventions.

5. Conclusions

Financial efficacy has been raised as a key determinant in molding financial behaviours and financial outcomes among distinct populations. As the research in the field of financial efficacy is still in the growing stage, it is essential and beneficial to address the identified gaps and explore new avenues for enriching financial efficacy, especially among vulnerable groups. With the incorporation of effective strategies in financial efficacy, it can result in the achievement of financial well-being and will be able to gain resilience in an increasing economic landscape.

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