

Insights on Debt Behaviour: A Bibliometric Analysis

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ABSTRACT:

This article conducts a comprehensive analysis of debt behaviour research, examining its evolving trends, influential authors, intellectual structure, collaborative networks, and thematic evolution. Through a systematic literature review and bibliometric analysis utilizing the Bibliometrix R-package, a dataset of 138 meticulously selected documents from the Scopus database is analysed. Findings reveal a notable increase in research productivity, with concentrations in finance, consumer studies, and marketing disciplines. Scientific mapping uncovers three knowledge structures: conceptual, thematic, and intellectual. This comprehensive examination offers invaluable insights into the scholarly landscape of debt behaviour research, serving as a vital resource for researchers and policymakers alike.

JEL Codes: G40, G41, G51, G53, G50

Keyword: Debt behaviour, Bibiloshiny, Bibliometric, financial behaviour, credit attitude

1. INTRODUCTION:

Debt has emerged as a significant cause for apprehension, not only in terms of long-term economic prosperity but also regarding the stability and resilience of both individuals and entire economies. Despite a period characterized by efforts to reduce debt levels following the global sub-prime mortgage crisis, there has been a resurgence in global household debt levels, alongside an increase in the debt-to-GDP ratio. This trend suggests potential risks such as reduced borrowing capacity and heightened vulnerability to economic downturns. It underscores the importance of prudently managing debt at both the individual and macroeconomic levels to maintain financial stability and mitigate systemic risks. (Xiao et al., 2011).

On an individual household basis, making unwise borrowing choices can result in a range of expensive outcomes, encompassing economic, social, and health implications, ultimately impacting overall welfare. Economically, borrowing mistakes can lead to exorbitant debt costs, excessive debt loads, repayment difficulties, and, subsequently, defaults and personal bankruptcy (Lusardi & Tufano, 2015). Furthermore, debt, especially when it becomes excessive, has adverse effects on mental and physical health (Xiao et al., 2011; O'Neill et al., 2005; Turunen & Hiilamo, 2014; Richardson et al. 2013; Lenton & Mosley, 2008; Kadoya et al., 2018), as well as on financial well-being and overall life satisfaction (Brown & Gray, 2016; Plagnol, 2011; Shim et al., 2009).

Nevertheless, there is evidence to suggest that under specific circumstances, borrowing can defy 'Micawber's principle' and actually prove advantageous, leading to increased prosperity in the end. Credits and loans allow for income smoothing (Modigliani & Brumberg, 1954), enabling consumers to afford goods that would otherwise be out of reach with their current income. Additionally, refraining from borrowing may prevent consumers from accumulating wealth faster (Ando & Modigliani, 1963). In this context, when debt is employed to fulfill essential needs and elevate one's quality of life, it has the potential to positively influence overall well-being. By facilitating access to resources that enhance living standards and contribute to personal development, debt can serve as a tool for achieving financial stability and improving the quality of life. This underscores the importance of prudent and responsible debt management practices, wherein borrowing is aligned with long-term financial goals and used judiciously to bolster individual and household well-being.

Given the complexity and diverse implications of debt, effectively managing credit and loans requires individuals to possess relevant knowledge and skills. This empowers them to navigate the intricacies of borrowing with confidence, making informed decisions that enable them to adapt to various financial situations, whether favourable or challenging. By equipping themselves with the necessary expertise, individuals can better understand the nuances of debt management, thereby enhancing their financial resilience and capability to respond effectively to changing economic conditions. Effective debt management involves not only understanding the potential benefits and risks associated with borrowing but also implementing strategies to mitigate potential pitfalls. Therefore, fostering financial literacy and empowering individuals with the necessary tools and resources are vital in navigating the complexities of debt and ensuring sound financial decision-making in various situations. Higher levels of financial knowledge, whether objectively evaluated or self-assessed, have been found to be strongly associated with more favourable attitudes toward healthy financial behaviours (Shim et al., 2010; Xiao et al., 2011). Various studies have shown that pro-debt attitudes are positively linked to knowledge of credit (Almenberg et al., 2021; Lachance, 2012). Research

conducted by Bialowolski et al. (2018) underscores a significant correlation between individuals' attitudes towards debt and their proficiency in managing debt, indicating a robust interdependence between debt attitudes and the possession of requisite debt-related knowledge and skills. Specifically, the study highlights that individuals with enhanced debt management skills tend to harbour more favourable attitudes towards debt. Moreover, the findings suggest that among the various factors influencing debt attitudes, debt skills emerge as particularly potent predictors, implying that individuals equipped with greater competence in handling debt exhibit a propensity towards more positive perceptions of indebtedness. Furthermore, investigations by Shim et al. (2010) shed light on the influential role of parental figures in shaping individuals' attitudes and behaviours concerning financial matters. The research delineates that the adoption of parents as exemplars significantly predicts elevated subjective norms and perceived behavioural control in individuals, alongside fostering a disposition towards endorsing responsible financial conduct. This underscores the pivotal role of parental modelling in cultivating not only normative perceptions but also a sense of efficacy in navigating financial decisions, ultimately contributing to the cultivation of favourable attitudes towards responsible financial behaviour among individuals.

In the realm of social psychology, there exist three predominant theoretical frameworks elucidating the causal dynamics between attitude and behaviour: the perspective positing attitude as influencing behaviour (Fishbein & Ajzen, 1977), the notion of behaviour exerting influence on attitude, and the acknowledgment of bidirectional causality between the two constructs (Krugman, 1965). Additionally, it is recognized that instances may arise where attitude and behaviour exhibit no discernible relationship (Ajzen, 1991). Nevertheless, prevailing findings in consumer finance research consistently indicate a positive association between attitude and behaviour. Specifically, a favourable attitude towards a particular behaviour, particularly those deemed beneficial or healthy, correlates with an increased propensity for the enactment of said behaviour (Shim et al., 2009; Xiao et al., 2011; Ali et al., 2015). It's logical to anticipate that increased occurrences of unhealthy debt behaviour will result in a deteriorating economic debt situation. It's also well-documented that exhibiting healthy financial behaviours is positively correlated with financial satisfaction (Joo & Grable, 2004) and, in turn, overall life satisfaction (Xiao et al., 2009). Additionally, debt, especially excessive debt resulting from unhealthy behaviours, is linked to reduced overall life satisfaction (Brown & Gray, 2016; Shim et al., 2009) and increased anxiety levels.

While there are numerous review articles on financial behaviour, there is a gap in the area of debt behaviour exclusively. The main goal of this article is to provide a comprehensive overview of the field by synthesizing knowledge structures.

1.1 Research Questions:

- (i) What are the leading journals and influential authors in the field of debt behaviour?
- (ii) What does the intellectual framework of the research community in this area look like?
- (iii) How are researchers collaborating within the domain of debt behaviour?
- (iv) What are the most frequently explored topics in recent studies on this subject?

1.2 Research Objectives:

- (i) To discern the evolving trends and patterns in the advancement of knowledge concerning debt behaviour.
- (ii) To scrutinize the structure of knowledge and produce a comprehensive synthesis of existing knowledge.

2. Research methodology:

In this section, we provided comprehensive insights into the steps involved in conducting a literature assessment and outlined the methodology used for the search process. Following the recommendations by Xiao and Watson in 2019, this study embraced a Systematic Literature Review (SLR) research approach. We adhered to the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) guidelines. These guidelines serve as a framework for systematically conducting and reporting on literature reviews, facilitating a structured and thorough examination of existing research relevant to the topic under investigation. According to Moher et al. in 2015, the PRISMA framework encompasses clearly defined protocols that enhance the comprehension and execution of reviews of existing studies, while ensuring the validity, reliability, and replicability of those studies. The PRISMA framework includes a four-phase flowchart that aids in identifying high-quality literature and promotes transparent reporting of the review process, as initially outlined by Liberati in 2009. This research approach also integrated a methodical examination of existing literature, aimed at uncovering the rationale behind the research topic and questions, applying screening standards, achieving a balance between comprehensiveness and depth, centring on the fundamental concept, providing synthesis and interpretation of the analysis, and adhering to a structured methodology, as highlighted by Fisch and Block in 2018. To carry out this comprehensive review, a total of 138 articles were examined.

2.1 Database Selection: Selecting a suitable database with well-organized article descriptions is essential when undertaking bibliometric analysis. In order to meet this criterion, we conducted data retrieval utilizing the Scopus

database. This choice was primarily driven by several factors, including the database's comprehensive coverage of articles, robust categorization of journals, and seamless compatibility with the Bibliometrix software in R-studio. Leveraging the capabilities of the Scopus database allowed us to access a vast array of scholarly literature relevant to our research topic, ensuring a comprehensive and reliable dataset for our bibliometric analysis. This strategic decision facilitated a more thorough exploration of scholarly publications and enhanced the accuracy and depth of our study findings.

2.2 Data Preparation for Analysis: Data was obtained from Scopus in CSV format, aligning with the software's specifications. The selection of documents followed specific search criteria:

- **Keyword Search:** A keyword search was conducted using terms such as "debt behaviour," "debt attitude," "credit attitude," "credit behaviour," and "borrowing behaviour."
- **Time Span Selection:** To capture trends and perspectives in the field of debt behaviour comprehensively, publications from 1977 to 2021 were included. This ensured that seminal works were not excluded.
- **Subject Category Refinement:** The search was further honed by concentrating on categories such as economics, business finance, business management, and specific social sciences. As a result, 170 items were retrieved.
- **Document Type Selection:** In order to closely match the objectives of the research, proceedings papers were excluded from the analysis. Consequently, the dataset was refined to include 152 documents, comprising book chapters, articles, early access publications, and reviews. This curated dataset was subsequently employed for in-depth analysis and examination.
- **Language Filtering:** The previously selected documents underwent a language filter to retain only those in English, resulting in a final dataset of 138 documents.

The data contained within these documents, encompassing details such as titles, authors, abstracts, and keywords, was imported into Biblioshiny in plain text format to facilitate the efficiency of subsequent processing procedures. After refining the data to remove any duplicates and ensure compatibility with the desired format, the final dataset incorporated into the Bibliometric framework consisted of 1,138 documents. This comprehensive dataset provided a robust foundation for conducting thorough analyses and generating valuable insights within the Bibliometric framework. By integrating a diverse range of documents, we aimed to capture the breadth and depth of scholarly contributions relevant to our research objectives. (see Figure 1).

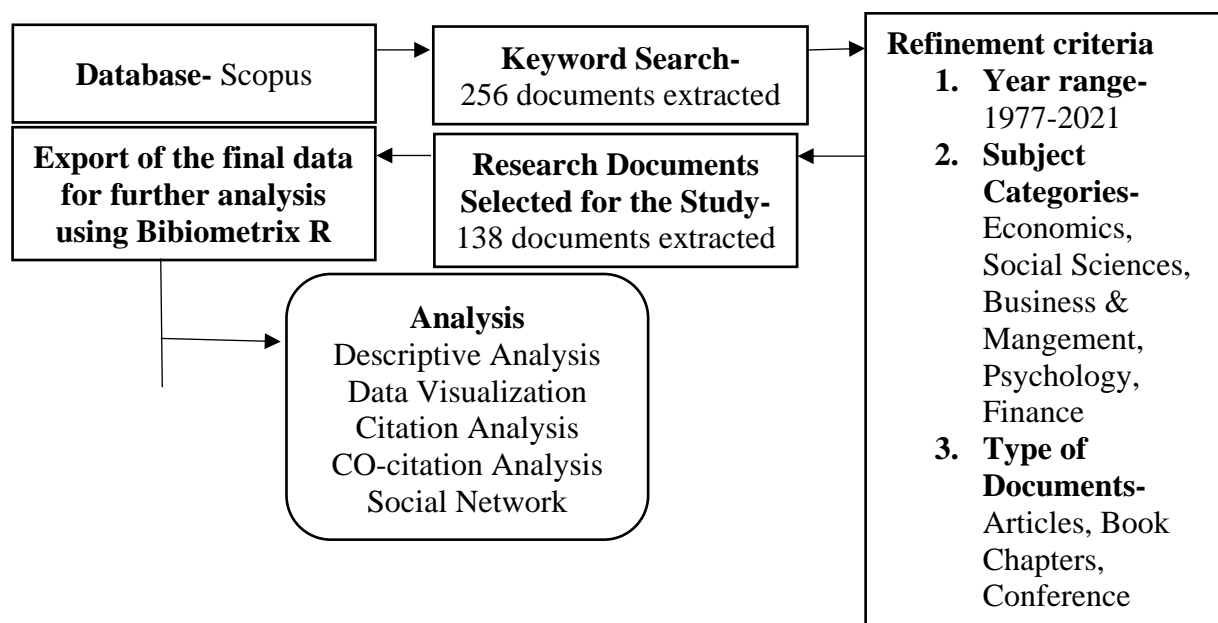


Figure 1. Flowchart for selection of documents for Bibliometric analysis

2.3 Selection of bibliometric tool: In order to conduct an extensive examination of scientific literature, this investigation employs bibliometric methodology. Bibliometrics represents a well-established research approach within the domain of library and information science, entailing the utilization of statistical and mathematical analyses of scholarly publications to augment the efficacy and efficiency of library services (Tella and Olabooye, 2014). Throughout its historical development, numerous software tools have been employed for bibliometric analyses

and data visualization purposes. Examples of such tools include BibExcel, Publish or Perish, CiteSpace (Jayantha and Oladinrin, 2019), Histcite (Garfield, 2004), VOS viewer (Rialti et al., 2019), Pajek, and Gephi. These tools serve as instrumental aids in the exploration and visualization of bibliometric data, facilitating comprehensive insights into scholarly communication patterns and trends.

In this study, we employed the Bibliometrix R-package, a software application developed in the R programming language by Ariaa and Cuccurullo in 2017. This advanced tool represents a robust resource for conducting comprehensive bibliometric analyses, offering capabilities not only for data examination but also for employing sophisticated visualization methods. By leveraging the capabilities of the Bibliometrix R-package, we were able to delve deeply into the wealth of scholarly literature relevant to our study, extracting valuable insights and trends to inform our research objectives. This tool enabled us to conduct thorough analyses, visualize complex datasets, and uncover meaningful patterns within the vast landscape of academic literature. Unlike many other bibliometric analysis tools, which can be challenging to access due to commercial licensing and often require extensive training, Bibliometrix is a freely available software designed specifically for conducting in-depth science mapping analyses. We conducted our analysis utilizing Biblioshiny, a web-based application integrated into the Bibliometrix package. This intuitive tool doesn't require any programming skills and allows users to effortlessly conduct science mapping analyses by utilizing essential features from the Bibliometrix package. Consequently, it streamlines the process for researchers, making it more accessible and user-friendly.

3. Data Analysis and findings.

The data analysis procedure comprised two primary components: descriptive examination and scientific mapping.

Descriptive Analysis: The descriptive analysis primarily focuses on examining bibliometric data to reveal fundamental attributes of the dataset. This involves a comprehensive exploration of various facets, including the origins of the data, the identities of authors who have contributed to the dataset, and the intrinsic characteristics of the documents contained therein. By comprehensively exploring these fundamental characteristics, researchers can gain valuable insights into the composition and structure of the dataset, thereby laying a solid foundation for further in-depth analyses. This initial phase of analysis not only provides an overview of the dataset but also sets the stage for more nuanced investigations into trends, patterns, and relationships within the scholarly literature.

Scientific Mapping: Scientific mapping involves a thorough investigation of a particular subject area by employing various visualization methodologies, including network analysis, three-field plots, thematic maps, and the development of a knowledge framework to aid in subsequent analysis. This approach enables researchers to delve deeply into the intricacies of the topic under scrutiny, visually representing relationships, patterns, and trends within the dataset. This method lets researchers visually show and understand the complex connections, patterns, and trends in the field. This helps gain a better grasp of its intricacies and guides further analysis.

3.1 Descriptive Analysis

In this section, we delve into various dimensions that were explored during the descriptive analysis.

Data Sets: Table 1 offers a comprehensive overview of the bibliometric dataset, encompassing 168 meticulously curated documents acquired through a rigorous systematic search conducted on the Scopus database. These documents were culled from a diverse array of 113 unique publications and exhibited an average citation score of 20.5. Furthermore, international collaboration among authors contributed to 23.19% of the dataset, indicating a notable degree of cross-border scholarly engagement and cooperation in the field under investigation.

Three Field plots: The three-field plots, as depicted in Figure 2, employ a Sankey Plot to illustrate the relationships among three distinct categories, a method elucidated by Riehmann et al. in 2005. In this visualization, authors are positioned on the left side, keywords occupy the middle column, and the selected sources for analysis are situated on the right side. It is noteworthy that a considerable proportion of papers authored by all twenty individuals have predominantly appeared in two key journals: the International Journal of Bank Marketing and Cogent Economics and Finance. This observation underscores the significance of the theme of "financial knowledge" in influencing "debt behaviour," as it emerges as a prevalent motif across all twenty influential journals.

By leveraging three-field plots, researchers can effectively discern intricate patterns and connections across multiple dimensions, thereby enhancing their understanding of the complex interplay among authors, keywords, and sources within the research domain. This visual representation not only facilitates the identification of central themes and influential contributors but also provides valuable insights into the dissemination of knowledge and scholarly discourse within the field of study.

Description	Results
Timespan	1977:2021
Sources (Journals, Books, etc)	113
Documents	138
Annual Growth Rate %	6.79
Document Average Age	10.8
Average citations per doc	20.5
References	5561
Keywords Plus (ID)	202
Author's Keywords (DE)	409
AUTHORS	
Authors	314
Authors of single-authored docs	26
Single-authored docs	27
Co-Authors per Doc	2.54
International co-authorships %	23.19

Table 1.
Summary of Data Set

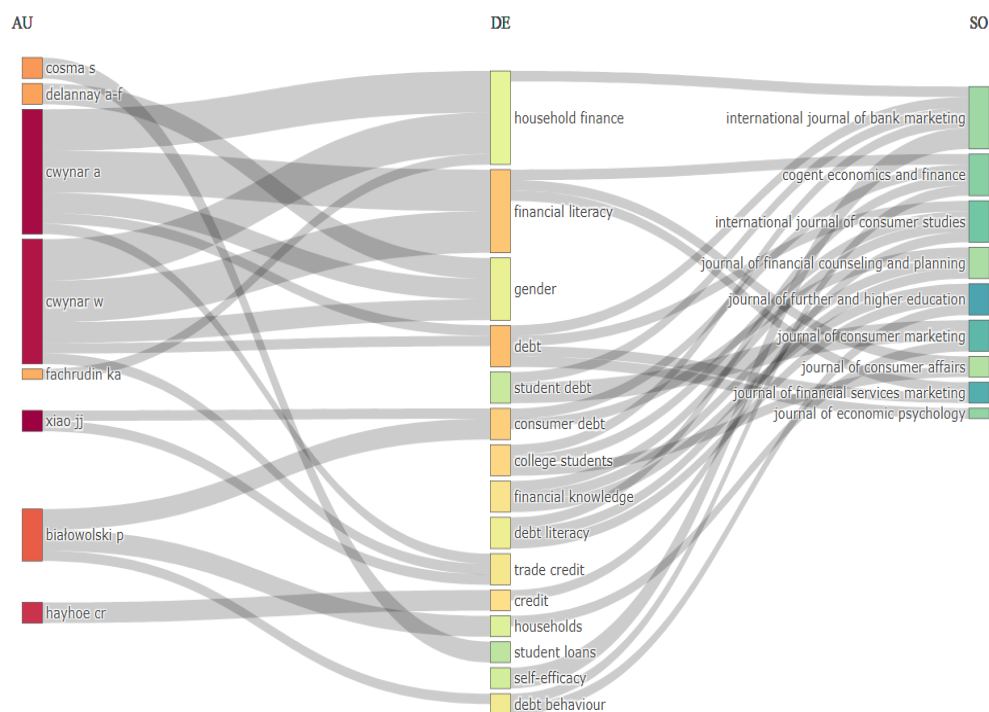


Figure 2: Three field Plot

Sources: The research productivity in this field from 1977 to 2021 displayed a rising trend, as illustrated in Figure 3. Notably, there was a substantial surge in publications observed in 2019. However, it is crucial to acknowledge that despite this rapid growth, the field has not yet reached a level of maturity, as evidenced by the ongoing steady increase in the number of publications on this topic.

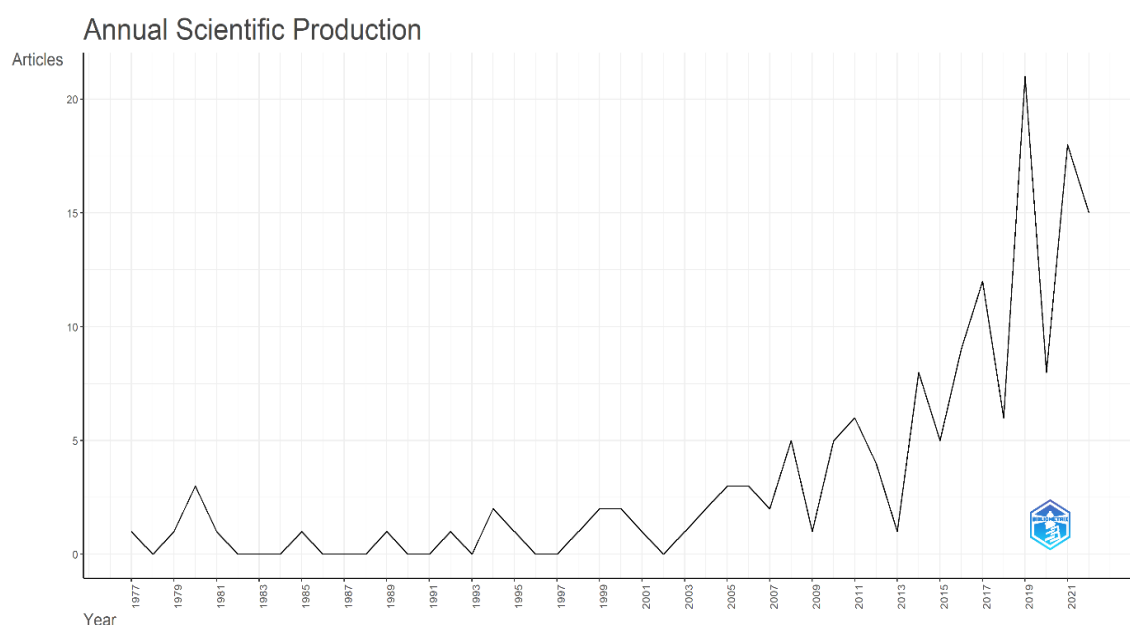
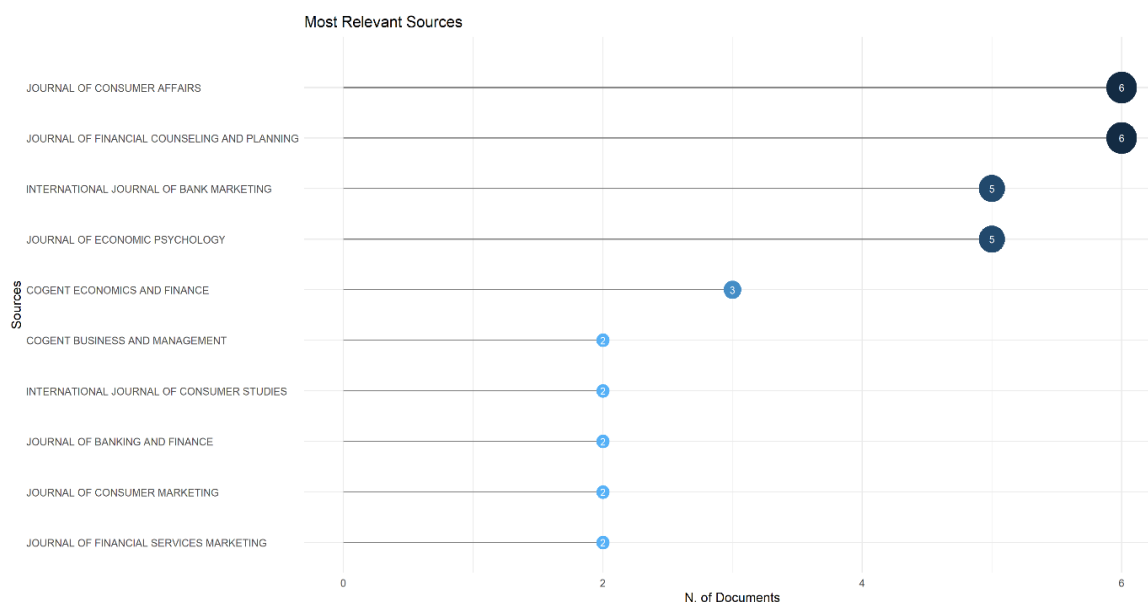
**Figure 3: Scientific Productivity**

Figure 4 presents the top 10 most frequently cited journals, offering insights into the calibre and prominence of journals within this specific domain. Notably, the Journal of Consumer Affairs emerges as the most cited journal, with the Journal of Financial Counselling and Planning recognized as the most influential source (Figure 5). A deeper analysis of these journals underscores a concentration of literature on debt behaviour within disciplines such as finance, consumer studies, and marketing, highlighting the multidisciplinary nature of research in this area.

**Figure 4: Top 10 cited sources**

Authors: Xiao JJ., Cwynar A., and Cwynar W. emerged as the most pertinent authors with the highest number of publications in the field, as depicted in Figure 6.

Country wise Contribution: Table 2 provides an overview of the participation of different countries in this particular field, emphasizing the substantial contributions made by developed nations to the existing literature. Notably, the United States emerges as the leading contributor, boasting the highest number of publications within this domain.

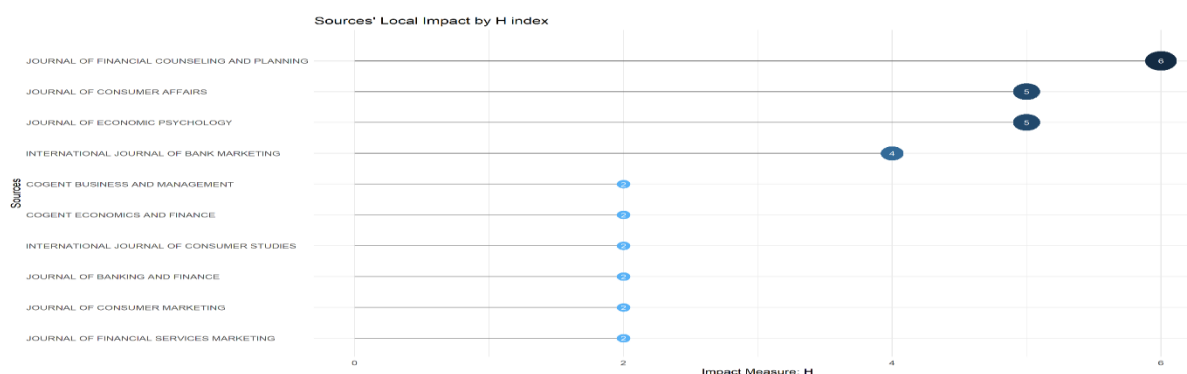


Figure 5: Top 10 Impactful sources

Following closely behind is China, albeit at a considerable distance in terms of publication output. This highlights the notable influence and scholarly activity originating from developed nations in shaping the discourse and advancing knowledge within this field. The volume of publications also corresponds to the number of citations received by articles. Approximately 55% of all citations in this field were attributed to research originating in the United States, underscoring the concentration of research efforts in this region. Moreover, the analysis reveals that the United States holds the top position globally in terms of citation counts, with the United Kingdom and China following closely behind.

Countries Scientific Production		Most Cited Countries	
Country	Freq	Country	TC
USA	128	USA	849
CHINA	53	UNITED KINGDOM	179
UK	30	CHINA	178
MALAYSIA	14	NEW ZEALAND	67
POLAND	14	SPAIN	53
INDONESIA	13	CANADA	49
NEW ZEALAND	10	NETHERLANDS	49
GERMANY	9	CHILE	41
INDIA	8	GERMANY	41
SWEDEN	8	FRANCE	32

Table 2.
Top 10 Countries:
Productivity and Citations

Documents: Figure 7 displays the ten most referenced documents within the domain. The first seven articles have accumulated over 100 citations each. Notably, the top three publications were authored by Wigintor JC., Hayhoe CR., and Xiao JJ., suggesting their significance as pivotal references in the field.

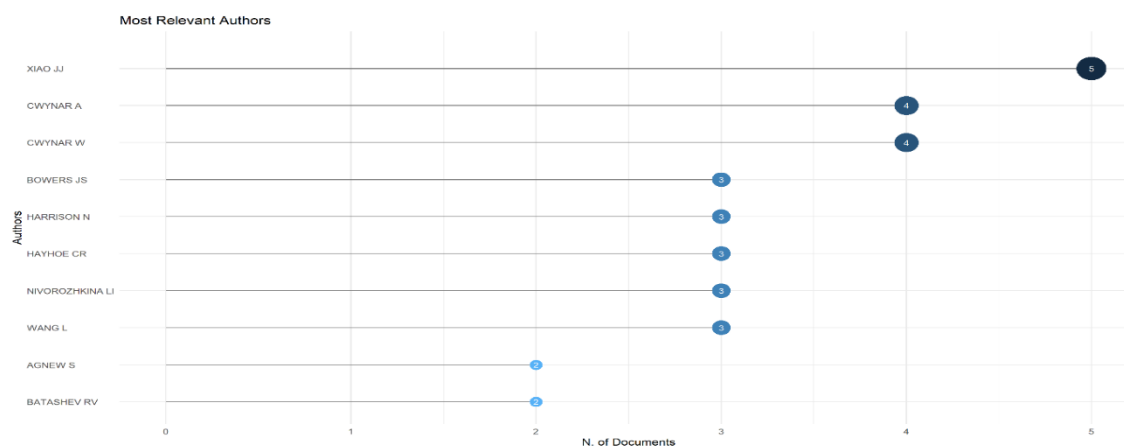


Figure 6: Most relevant authors

Keywords: Figure 8 provides a visual representation of the frequency at which words appear throughout the document, with the size of each word serving as an indicator of its relative importance within the broader literature. Larger words signify terms that are more prevalent and potentially influential within the corpus of scholarly works under examination. This visualization can serve as an indicator of how relevant a particular word is within the context of the research. Notably, words such as financial literacy, financial knowledge, debt, debt literacy, household finance, and debt behaviour emerged as prominent and dominant themes within the literature.

3.2 Data Visualisation:

The topic of debt behaviour has attracted growing interest and research emphasis over time. In this section, we provide a summary of the thematic progression within this area of study. To accomplish this objective, we utilize data visualization methodologies, notably network analysis, to conduct a quantitative evaluation encompassing metrics such as the identification of emerging clusters, occurrences, associations among diverse units of analysis, total link strength, and citation counts (Low and Siegel, 2019). This approach involves the creation of diverse visual representations utilizing different units of analysis, including documents, authors, and keywords, with the aim of revealing connections within the dataset. These connections are visually depicted through interconnected nodes, forming intricate webs that illuminate relationships among various components. By engaging in this visual exploration, researchers can glean insights into the nuanced interplay and associations within the data, thereby facilitating a more profound comprehension of the underlying structures and patterns. This comprehensive approach aids in uncovering hidden trends, identifying key influencers, and discerning emerging themes within the research domain, ultimately enriching scholarly understanding and informing future investigations. By analysing these networks, researchers can uncover valuable insights and trends that contribute to a richer understanding of the research landscape. Following the creation of these maps, statistical analyses are conducted to reveal diverse metrics across the entirety of the network (Ariaa and Cuccurullo, 2017). Utilizing network analysis, scientific mapping facilitates the identification of three discernible knowledge structures, with conceptual and intellectual structures being notable among them.

Conceptual Structure: The conceptual framework of a research domain exposes the interrelations and exchanges among various themes, subjects, and patterns. This is achieved through techniques such as co-occurrence networks or co-word analysis, which scrutinize the frequency of occurrence of specific terms or concepts together in scholarly literature. This methodology relies solely on the content of research papers, focusing on concepts, frequently employed terms, or interconnected themes as the unit of analysis (Li et al., 2018). The conceptual structure is derived by the Bibliometrix package through multiple correspondence analysis (MCA), a technique enabling numerical and graphical analysis of multivariate nominal data (Greenacre and Blasius, 2006). When implemented with keyword units of analysis, employing standard configurations including automated layout and normalization through association utilizing Louvain's clustering algorithm, the Multiple Correspondence Analysis (MCA) facilitated the creation of the keyword co-occurrence network depicted in Figure 9.

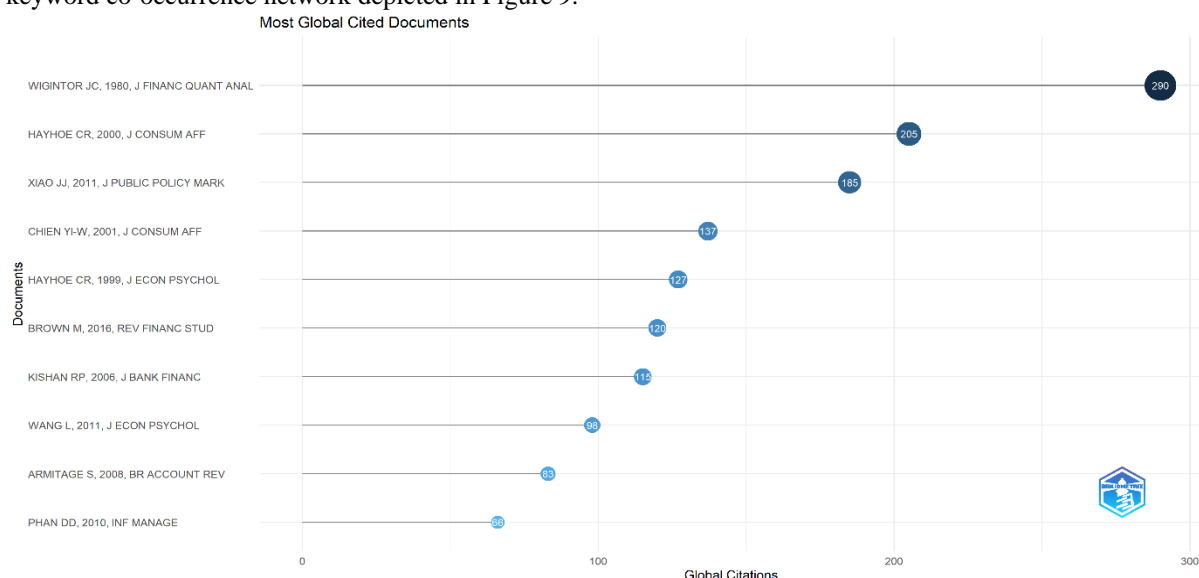


Figure 7: Most Cited documents



Figure 8: Word cloud

Figure 9 depicts the emergence of three discrete clusters represented by the colours red, blue, and green. These colours symbolize distinct groupings, with the proximity between nodes indicating their level of association. In this visualization, every word is depicted as a vertex within the graph, wherein the magnitude of the node corresponds to its frequency of occurrence. The red cluster predominantly encompasses topics related to credit provision, while the green cluster highlight themes associated with insurance and economics. Conversely, the blue cluster intertwines concepts pertaining to commerce and finance, delineating distinct thematic domains within the broader semantic network.

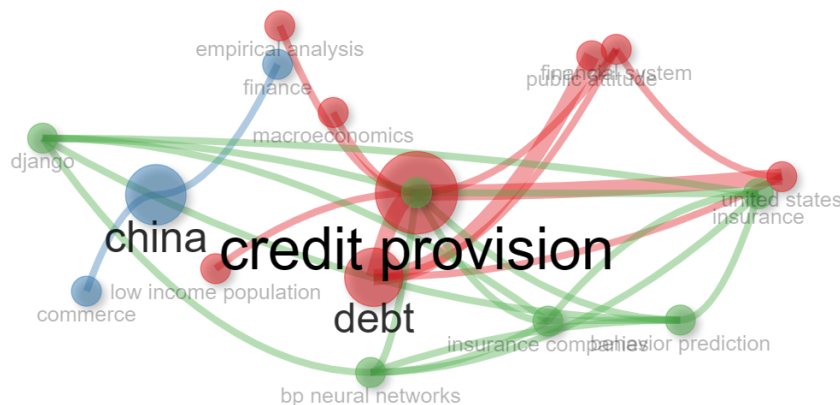


Figure 9: Co-occurrence Network

Thematic map: A thematic map serves as a visual representation of the thematic trends within a research domain, as elucidated by Cobo et al. in 2011. Through the process of co-word analysis, clusters of keywords are identified, leading to the formation of thematic categories that encapsulate the core concepts and trends prevalent within the field. After identifying thematic categories, they're visually represented on a two-dimensional plot, divided into four quadrants using centrality and density metrics as criteria. Each category appears as a bubble on the plot, with its size and position reflecting its importance and centrality in the research landscape. This graphical depiction allows researchers to discern the prevailing themes and evolving trends within the field. It provides a clearer understanding of the intricate dynamics and connections within the research domain, aiding researchers in uncovering significant insights.

In Figure 10, the upper right quadrant is occupied by the theme "credit evaluations." It is evident from the figure that "Credit scoring" stands out as a core and widely discussed topic due to its higher density, positioning it at the heart of the discipline. Additionally, themes such as "credit provisions," "debt," and "finance" also hold significant prominence and influence. On the other hand, themes like "electronic commerce" and "sales" are considered emerging or declining themes. Transitioning towards the upper left quadrant of the analysis, we encounter niche thematic clusters,

exemplified by the well-defined theme of "Behaviour prediction." This thematic enclave exhibits a discernible level of intricacy, underscored by robust internal connections amongst its constituent elements. However, it also manifests relatively subdued external linkages, indicating a degree of insulation from broader scholarly discourse.

Intellectual Structure: The concept of intellectual structure delves into how authors influence the scientific community by studying collaborations among authors and nations. This analysis uncovers the extent of teamwork among research groups, scholars, and their connections with different institutions, as emphasized by Cobo et al. in 2011 and Mendes et al. in 2017. Through careful scrutiny of citation and co-citation patterns, the intellectual structure offers valuable insights into the various viewpoints and academic traditions that have developed within the field over time. This examination helps us understand the collaborative networks and knowledge exchange dynamics that shape scholarly discourse. This thorough examination empowers researchers to identify not just the main theories and ideas but also the relationships and impacts among different scholarly works. By revealing the origins and paths of ideas, this method helps us better grasp how the research field has developed and changed over time. In essence, it allows us to see how ideas have evolved and influenced one another, leading to a richer understanding of the research environment's dynamics. Furthermore, it offers a framework for identifying emerging trends, identifying key contributors, and assessing the impact of seminal works on the advancement of knowledge within the domain.

Citation analysis and Co-citation Analysis: Citation and co-citation analysis are quantitative methodologies, as emphasized by Rodriguez-Ruiz et al. in 2019. Citation analysis operates under the premise that authors reference documents they deem significant within their research context. According to Ruggeri et al. in 2019, a greater number of citations serves as an indicator of the heightened significance and calibre of a document within scholarly discourse. This suggests that extensively cited documents are perceived as influential and impactful within their respective fields. Moreover, as explained by Egghe and Rousseau in 1990, when one document references another in its list of sources, it indicates a link or association between the two documents. This referencing relationship emphasizes how scholarly works are interconnected and highlights the impact that certain works have on shaping subsequent research. Co-citation analysis, on the other hand, provides insights into the connections among articles that both cite and are cited by other articles. Through scrutinizing these co-citation patterns, researchers can cultivate a more profound comprehension of the intellectual framework and thematic interrelations within a designated research domain. This analytical endeavour unveils the intricate web of interconnected ideas and concepts spanning across diverse scholarly endeavours, thereby elucidating the expansive terrain of knowledge dissemination and scholarly influence within academia.

In Figure 11, Xiao JJ emerges as the preeminent author, distinguished by possessing the highest betweenness centrality measures, indicative of significant influence within the scholarly network. Moreover, authors such as Lusardi A., Hayhoe CR., and Davies E. are underscored for their notable contributions to the field. The collective impact of these authors underscores the diverse perspectives and expertise that enrich ongoing dialogues and advancements within this specialized domain of inquiry.

Social Network analysis: Low and Siegel (2019) embark on an exploration of social network analysis, aiming to shed light on the intricate network of interrelated relationships within the research domain. This analytical approach serves as a powerful tool for uncovering the

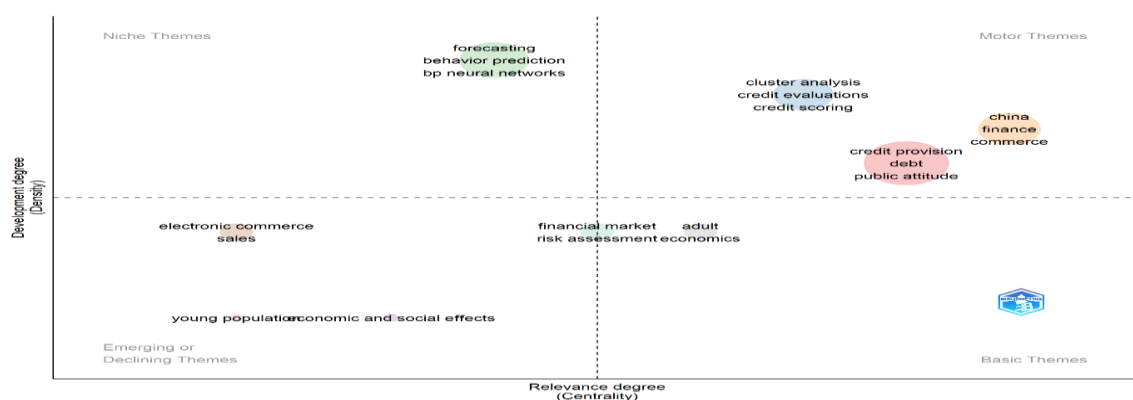


Figure 10: Thematic map

complex networks that underlie collaborative endeavours and knowledge dissemination within academia. In this context, the term "nodes" encompasses various entities, including authors, institutions, or publication sources, each serving as integral components within the social network. These nodes collectively form clusters that depict the

The graph shows a complex network of international connections. The USA is the central hub, with prominent connections to the UK, Canada, and China. Other significant nodes include France, Germany, and India. The graph uses a color-coded system where nodes of the same color are often connected by lines of the same color, suggesting different categories or clusters of countries. For example, blue nodes (USA, Germany, Korea, Netherlands, Sweden, Singapore) are connected by blue lines, while red nodes (UK, Canada, South Africa, China, Ireland, Indonesia) are connected by red lines. Green nodes (Australia, New Zealand, India, Portugal) are connected by green lines, and orange nodes (Turkey, Saudi Arabia, Poland, Spain) are connected by orange lines. Purple nodes (France, Malaysia, Pakistan) are connected by purple lines. Grey lines represent connections between nodes of different colors.

This approach allows researchers to visualize and analyse the connections and collaborations between entities across diverse geographic regions, providing insights into the global dynamics of scholarly collaboration within the field. From a regional standpoint, it's clear that the United States exerts a significant influence on scholarly investigation and engages in extensive collaboration with various nations, including emerging economies. This collaboration underscores the global interconnectedness of research efforts, as depicted in Figure 12. Moreover, the collaborative network among institutions, depicted in Figure 13, underscores the prominence of a cluster spearheaded by the University of Rhode Island, collaborating closely with the University of Florida and the University of Economics and Innovation

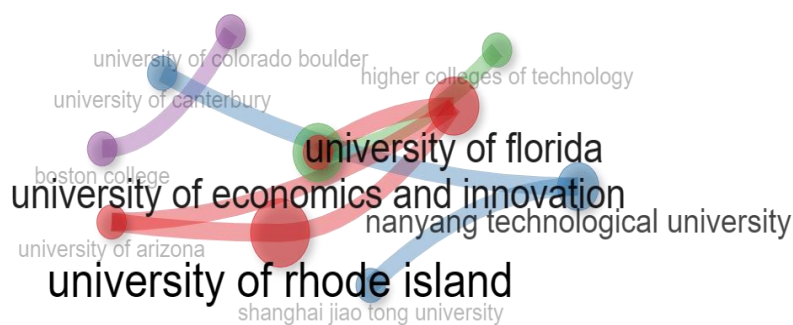


Figure 13: Institutional collaboration network

4. Conclusion:

In this comprehensive examination, we have delved into various dimensions within the field of debt behavior research, providing valuable insights into the scholarly landscape. Our analysis began with an overview of the bibliometric dataset, which consisted of 168 carefully selected documents. These documents were drawn from 113 distinct sources and exhibited an average citation score of 20.5, with international co-authorship accounting for 23.19%. Further exploration involved the utilization of three-field plots, which illustrated relationships among authors, keywords, and selected sources. Significantly, numerous impactful papers authored by a group of twenty individuals were notably published in both the *International Journal of Bank Marketing* and *Cogent Economics and Finance*, highlighting the crucial role of "financial knowledge" in influencing conversations regarding "debt behavior." Our analysis also revealed a rising trend in research productivity within the debt behavior domain from 1977 to 2021, with a notable surge in publications in 2019. Despite this growth, the field has yet to reach maturity, as evidenced by the ongoing increase in publications. Top-cited journals, as depicted in Figure 4, affirmed that a substantial portion of literature on debt behavior was concentrated in finance, consumer studies, and marketing disciplines. Furthermore, we identified the most relevant authors, with Xiao JJ, Cwynar A., and Cwynar W. emerging as notable contributors in the field. Country-wise contributions underscored the leading role of developed nations, particularly the United States, which led both in publications and citations. Our analysis also highlighted the top-cited documents, showcasing the significance of publications authored by Wiginton JC., Hayhoe CR., and Xiao JJ. Keywords, visualized in Figure 8, illuminated dominant themes such as financial literacy, financial knowledge, debt, debt literacy, household finance, and debt behavior. The conceptual structure, as seen in Figure 9, revealed thematic clusters with distinct characteristics. Notably, the red cluster emphasized credit provision, the green cluster highlighted insurance and economics, and the blue cluster integrated commerce and finance. Thematic maps, as presented in Figure 10, visually represented typological themes within a two-dimensional plot. Notably, "credit scoring" emerged as a core topic with high density and centrality, while "credit provisions," "debt," and "finance" also held significant prominence. Niche themes like "behavior prediction" were found in the upper left quadrant. Our exploration then extended to the intellectual structure, which examined the influence of authors on the scholarly community through citation and co-citation analysis. Xiao JJ emerged as the most influential author, followed by Lusardi A., Hayhoe CR., and Davies E., reflecting their substantial contributions to the field. Lastly, social network analysis unveiled the interconnected relationships within the research domain, emphasizing collaboration among authors, institutions, and publication sources. The collaboration network highlighted the leading role of the United States, with extensive partnerships with various countries, including emerging economies. Moreover, an analysis of the collaboration network between institutions has unveiled a significant cluster spearheaded by the University of Rhode Island. This cluster demonstrates strong collaborative ties with both the University of Florida and the University of Economics and Innovation.

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