

## PROPENSITY TOWARD INDEBTEDNESS: A BIBLIOMETRIC ANALYSIS OF RESEARCH TRENDS AND CLUSTERS

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### ABSTRACT

*This study offers a comprehensive bibliometric examination of the research field surrounding the concept of predisposition for indebtedness. Based on articles indexed in major academic databases, significant trends, influential authors, leading journals, and topic clusters that have historically affected the discipline were explored. The study used co-citation, keyword co-occurrence, and bibliographic coupling to elucidate the interdisciplinary character of the topic, encompassing domains such as behavioural economics, consumer finance, psychology, and social policy. The findings showed that there was a shift in priorities of debt-related research on the issues of credit behaviour, financial literacy, debt-related stress, and socio-demographic characteristics that influence indebtedness. Furthermore, the analysis revealed critical areas of investigation and prospective deficiencies for subsequent exploration. This bibliometric method delineates the conceptual framework of the discipline while offering significant insights for scholars, policymakers, and practitioners focused on comprehending and tackling the behavioural determinants of debt.*

**Keywords:** Indebtedness, behavioral economics, bibliometric analysis

### 1.0 INTRODUCTION

In the last few decades, academic, policy, and public discussions on personal and household indebtedness have received increased attention. In particular, an increase in consumer debt, especially after global financial crises and general economic instability, has caused researchers to explore both the institutional and structural factors influencing debt, as well as the behavioural and psychological reasons behind individual debt. This investigation revolves around the concept of propensity for indebtedness, which is an individual's inclination or predisposition to take on and manage debt from a combination of cognitive, emotional, social, and economic factors.

Traditionally, the topic of indebtedness was discussed within economic theory and was mostly associated with rational decisions, incomes, and interest rates. However, recently, this analytical framework has been extended to include behavioural economics, psychology, and sociology, which recognises the fact that borrowers' decisions often deviate from the rational models. Some of the critical factors to understand how several individuals are more prone to debt than others include impulsivity, financial literacy, risk tolerance, and social norms. Concurrently, different socio-demographic characteristics such as population age, gender,

education, and cultural background intersect with different behavioural aspects of the population and further confound the analysis.

As of now, the literature on the predisposition for indebtedness is fragmented due to the interdisciplinary nature of the subject, which covers various fields, such as finance, consumer behaviour, public policy, and mental health. Although the variability of this field demonstrates its depth, the situation also interferes with the synthesis of knowledge, identification of the research trend prevalent in the field, and uncovering the cluster of themes for guiding future investigation.

In this study, bibliometric analysis was employed to chart the academic environment of the inclination to indebtedness thoroughly. The method was selected because it offers a quantitative way to study a vast amount of academic literature and identify citation patterns, coauthorship networks, trends of keyword usage, and clusters of topics. In addition, the approach can elucidate the intellectual framework of the subject, highlight novel and important contributions, and identify emerging research areas.

The goals of this article are to answer the following questions:

- [1] What are the principal publishing trends and growth patterns in studies on propensity to indebtedness?
- [2] Who are the most popular authors, institutes, and journals in this research field?
- [3] What topic groupings and research streams have developed throughout time?
- [4] What are the prospective gaps and future research trajectories?

A comprehensive literature review is provided in this study to enable a better understanding of the topic and shed light on important insights for scholars, practitioners, and policymakers who are interested in consumer debt behaviour and financial well-being.

## **2.0 LITERATURE REVIEW**

In recent decades, there has been an increase in scrutiny of the inclination towards indebtedness owing to its complex characteristics as well as socio-economic consequences. In the beginning, studies were mainly focused on macroeconomic indicators and financial accessibility as the main factors that determined the increase in household debt (Maki, 2002; Dynan and Kohn, 2007). However, there has been a paradigm change in the emphasis on psychological, behavioural, and socio-cultural factors in borrowing behaviour (Norvilitis et al., 2003; Xiao & Porto, 2017; Lee et al., 2023; Yahya et al., 2023; Martin et al., 2024; Fernandez et al., 2024 & Chikeya et al., 2025).

### **2.1 Behavioral and Psychological Influences**

Most of the literature looks at indebtedness through the lens of behavioural economics and consumer psychology. According to several studies, present bias and over-optimism are cognitive biases that make a significant contribution to excessive borrowing (Laibson, 1997; Agarwal et al., 2009). Additionally, based on Lusardi and Tufano (2015) and Tokunaga (1993), there are three key determinants in the proficiency of individuals' debt management: impulsivity, self-regulation, and financial literacy. Research on college students conducted by Norvilitis et al. (2003) linked psychological dimensions, especially anxiety and locus of control, to credit card usage, emphasising a strong emotional aspect of debt. While Fernandes et al. (2024) showed that their evidence reveals that, overall, self-control problems lead to more indebtedness, which also, with a comprehensive analysis, demonstrated that the influence of self-control differs across an exhaustive range of credit options.

## **2.2 Socio-demographic and Cultural Aspects**

As in Spain, Martin (2024) indicates that younger households, larger families, and those with lower educational attainment are more prone to higher debt levels, highlighting the role of demographic factors in financial vulnerability. Yahya et al. (2023) identify socio-demographic variables such as age, income, education level, and marital status as significant determinants of indebtedness in Malaysia. Also, emphasising previous research, Brown et al. (2013) observed how socio-demographic factors, such as age, income, education, and marital status, have always determined debt behaviour. Moreover, psychological factors intertwined with socio-demographics, such as confidence in financial decision-making, also impact debt behaviour. Individuals exhibiting lower confidence levels are more susceptible to financial distress, highlighting the need for targeted financial education programs that address both knowledge and psychological barriers. Overall, cultural views towards debt are widely different across regions. For instance, collectivist cultures tend to have different debt tolerance and saving habits compared to individualist ones (Ranyard et al., 2006; Hofstede, 2001). These subtleties indicate why it is necessary to have contextually appropriate research paradigms. Chikeya et al. (2025) revealed that country-level and household-specific factors are important in explaining debt.

## **2.3 Structural and Institutional Frameworks**

Accessibility of the credit market and regulatory laws affect borrowing behaviors (Disney & Gathergood, 2013). Following the 2008 financial crisis, the literature on the systemic vulnerabilities stemming from over-consumer indebtedness has increased, and more stress has been put on financial regulation, consumer protection, and macroprudential policies (Atkinson & Messy, 2012). Lee et al. (2023) found that tightening macroprudential tools is more effective in reducing bank systemic risk when combined with inflation targeting frameworks.

## **2.4 Research Clusters and Emerging Themes**

A recent bibliometric analysis of the literature shows an increasing corpus of publications constituted by multi-disciplinary research incorporating the aspects of economics, finance, sociology, and behavioural science (Grine & Saad, 2020). While the specific time frame of their bibliometric analysis isn't detailed in the available information, it's common for such studies to cover a span of 10 to 20 years to capture significant trends and developments. There are also emerging clusters on issues such as student debt, payday lending, fintech, and borrowing behaviour. On top of that, a new methodological transformation and overarching theme are emerging in the burgeoning frontier of debt using machine learning and big data analytics (Ghosh, 2021). Ahmed et al. (2022) in their bibliometric review identify an upward trend in publications starting from 2015, indicating growing interest and advancements in this area.

## **2.5 Requirement for Bibliometric Synthesis**

Despite a vast amount of publications and the remarkable diversity of the body of literature, there is a lack of systematic bibliometric evaluation that reviews the existing knowledge and identifies the development of the key themes and academic networks in the field. Most previous studies have focused on one or two aspects, such as financial literacy or consumer credit, but none have yet charted the whole intellectual terrain of the propensity to get into debt. While numerous studies have examined specific facets of indebtedness, such as financial literacy, consumer credit behaviour, or psychological factors, comprehensive analyses that integrate these dimensions to chart the entire intellectual terrain of the propensity to incur debt are relatively scarce. However, several studies have begun to bridge

this gap by exploring multiple determinants of indebtedness; Pamungkas et al (2024), Fernandez-Lopez et al. (2024), Chen et al. (2022). Therefore, this work aims to fill the gap by offering a comprehensive bibliometric study to determine the main research streams, trending works, and emerging trends.

### **3.0 DATA AND METHODOLOGY**

The Web of Science Core Collection (WOSCC) was used to extract bibliographic data, which was obtained on March 11, 2025. The search was conducted on the intersection of propensity and indebtedness using the following search terms on the topic (TS): ("indebtedness" OR "debt" OR "liabilit\*" OR "credit" OR "financial obligation") AND ("propensity" OR "tendency" OR "inclination" OR "predisposition" OR "susceptibility" OR "disposition"). The total number of records retrieved from this initial search was 4,702, from 1970 to 2025.

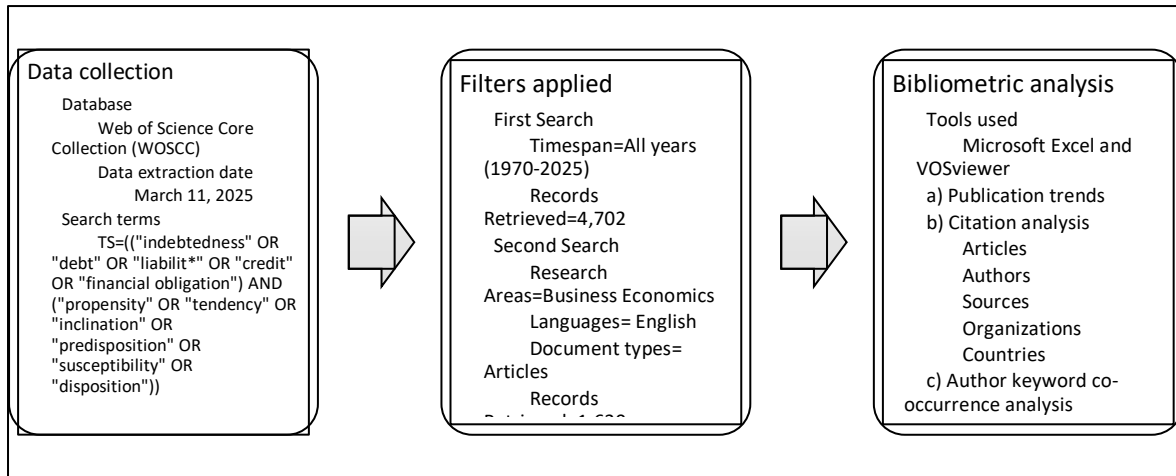
Our discussion on the propensity for indebtedness is informed by interdisciplinary fields like economics, finance, psychology, and sociology. The Social Sciences Citation Index (SSCI) and Arts & Humanities Citation Index (AHCI) of WOSCC provide comprehensive and historically substantial coverage of essential journals in these fields. Scopus, although robust in scientific and engineering fields, may exhibit inconsistent historical coverage or depth for certain prominent social science publications indexed by WOSCC. The WOSCC is meticulously curated, indexing only publications that fulfil stringent editorial and quality standards, hence producing a more selective and high-impact dataset. This enhances the legitimacy and reliability of bibliometric analyses. Conversely, Scopus encompasses a wider array of sources, including additional regional and conference proceedings, which may occasionally contribute noise or diminish the relevance and quality for particular specialised subjects.

Filters were applied to refine the results to those within the Business Economics research area, written in English, and classified as articles. After these refinements, 1,630 records were retrieved. The flowchart of the bibliometric analysis process for the propensity toward indebtedness is shown in Fig. 1.

The analytical tools used in this study were Microsoft Excel and VOSviewer (Van Eck & Waltman, 2020) for processing and visualising bibliographic data, respectively. The focus of the analysis was on assessing publication trends to measure the size of publications over time in an attempt to discover trends in emerging research fields. As stated by Det Udomsap and Hallinger (2020), citation analysis is a tool to identify the key authors and documents that have significantly influenced the literature. In this study, by classifying citations and publications by articles, sources, authors, organisations, and countries, the citation analysis was used to assess the impact of the research outputs.

The author's keyword co-occurrence analysis was another important aspect of the study. This analysis pointed out thematic clusters and research focus areas (Li & Xu, 2021), providing enlightenment regarding the structure and development of studies in the domain. The keyword co-occurrence network map contained nodes, links, total link strength (TLS), and clusters. If a keyword occurs frequently in publications, it means that the keyword is popular and important. In this study, keywords extracted from author keywords were represented as nodes, with larger nodes representing more frequent occurrences. In comparison, links are the co-occurrence relationships between keywords in the same article, and TLS is the sum of all link strengths of a keyword. Keywords in the same colour cluster are, in general, thematically related and often occur in the same research contexts.

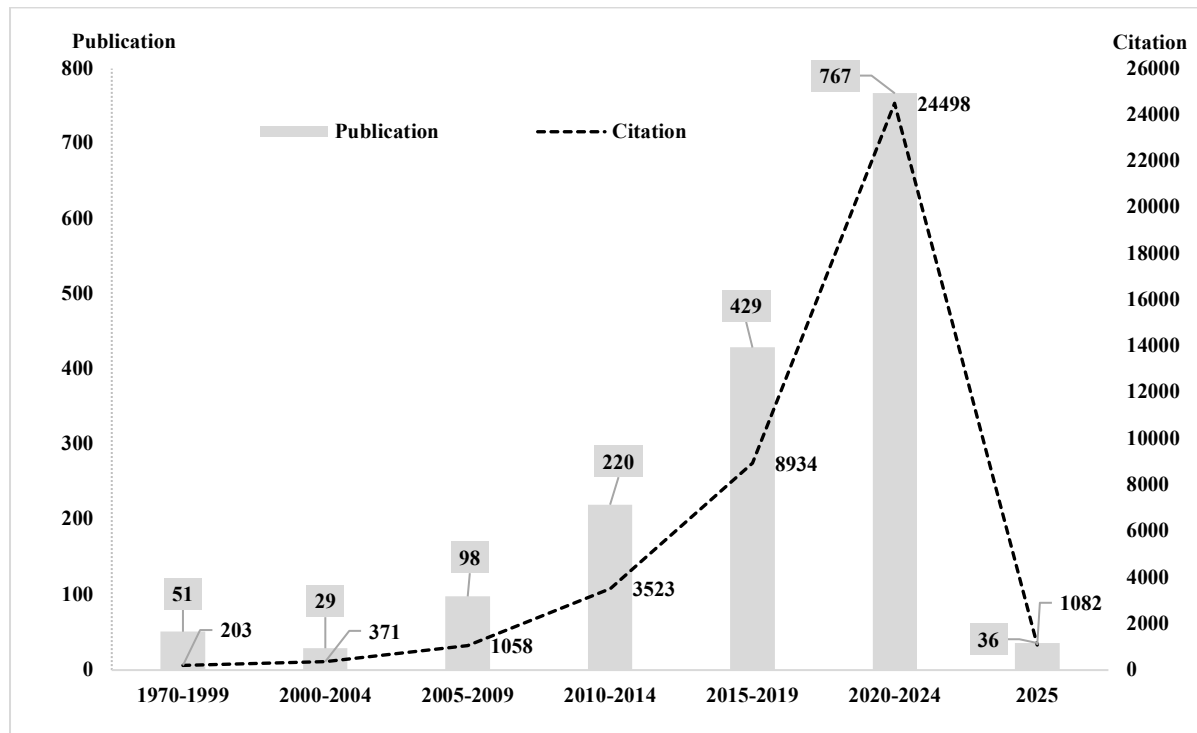
By applying these bibliometric techniques, the study offers a comprehensive understanding of research trends, influential works, and the overall development of the field of propensity toward indebtedness in the business economics research area.



**Fig. 1** Flowchart of the bibliometric analysis process

## 4.0 RESULTS AND DISCUSSION

### 4.1 Publication trends



**Fig. 2** Publication and citation trends, 1970-2025

Notes: Data was collected as of March 11, 2025

The dataset presents the number of publications and citations across different periods from 1970 to 2025. Both publications and citations showed a strong upward trend, with significant growth in recent decades.

From 1970–1999, publications were relatively low (51 total). A moderate increase was observed between 2000–2004 (29 publications), possibly due to limited research activity or data gaps. The real growth phase began in 2005–2009, with publications more than tripling to 98. The trend accelerated in 2010–2014, reaching 220 publications. A significant jump occurred in 2015–2019 (429 publications), nearly doubling the previous period. The highest surge occurred in 2020–2024, with 767 publications recorded, suggesting a rapid expansion of research output. The data for 2025 and beyond (36 publications so far) is incomplete but suggests promising ongoing activity.

Citations were relatively low from 1970 to 1999 (203 citations). A sharp rise began in 2000–2004 (371 citations), likely due to foundational research gaining traction. Between 2005–2009, citations surged to 1,058, indicating an increase in impact. The trend continued with 3,523 citations in 2010–2014, more than tripling the previous count. The most significant jump was between 2015 and 2019, where citations reached 8,934, signalling increasing influence. In 2020–2024, citations skyrocketed to 24,498, and this reflects the growing recognition and impact of research. From 2025 onwards, 1,082 citations have been recorded, and this number is expected to rise as time progresses.

#### Key Insights:

**Exponential Growth:** Both publications and citations have increased exponentially, particularly after 2010.

**Research Impact:** Citations have outpaced publications, indicating increasing influence per paper.

**Recent Surge:** The highest activity is seen from 2020 onwards, possibly due to advancements in research fields, technology, or global events driving new studies.

## 4.2 Citation analysis

**Table 1.** The top 20 most cited articles

Rank	Title	Authors	Publication Year	Source Title	Volume	Issue	Total Citations	Average per Year
1	Why do US firms hold so much more cash than they used to?	Bates, Thomas W.; Kahle, Kathleen M.; Stulz, Rene M.	2009	Journal of Finance	64	5	1556	91.5
2	The real effects of financial constraints: Evidence from a financial crisis	Murillo; Graham, John R.; Harvey, Campbell R.	2010	Journal of Financial Economics	97	3	1138	71.1
3	Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory	DeAngelo, Harry; DeAngelo, Linda; Stulz, Rene M.	2006	Journal of Financial Economics	81	2	805	40.3
4	Who takes the credit? Gender, power, and control over loan use in	Goetz, AM; Gupta, RS	1996	World Development	24	1	639	21.3

5	rural credit programs in Bangladesh From physical to human capital accumulation: Inequality and the process of development	Galor, O; Moav, O	2004	Review of Economic Studies	71	4	632	28.7
6	Household balance sheets, consumption, and the economic slump	Mian, Atif; Rao, Kamalesh; Sufi, Amir Hoberg, Gerard; Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2013	Quarterly Journal of Economics	128	4	564	43.4
7	Product market threats, payouts, and financial flexibility	Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2014	Journal of Finance	69	1	507	42.3
8	Lending relationships and loan contract terms	Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2011	Review of Financial Studies	24	4	481	32.1
9	Customer concentration risk and the cost of equity capital	Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2016	Journal of Accounting & Economics	61	1	423	42.3
10	Debt Enforcement around the World	Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2008	Journal of Political Economy	116	6	417	23.2
11	Exponential growth bias and household finance	Phillips, Gordon; Prabhala, Nagpurnan and Bharath, Sreedhar T.; Dahiya, Sandeep; Saunders, Anthony; Srinivasan, Anand Dhaliwal, Dan; Judd, J. Scott; Serfling, Matthew; Shaikh, Sarah Djankov, Simeon; Hart, Oliver; McLiesh, Caralee; Shleifer, Andrei Stango, Victor; Zinman, Jonathan	2009	Journal of Finance	64	6	349	20.5
12	Auditor resignations: clientele effects and legal liability	Shu, SZ	2000	Journal of Accounting & Economics	29	2	332	12.8
13	Walking the walk or talking the talk? Corporate social responsibility decoupling in emerging market multinationals	Tashman, Peter; Marano, Valentina; Kostova, Tatiana	2019	Journal of International Business Studies	50	2	327	46.7
14	Classification situations: Life-chances in the neoliberal era	Fourcade, Marion; Healy, Kieran	2017	Historical Social Research-Historische Sozialforschung	42	1	320	35.6
15	Classification situations: Life-chances in the neoliberal era	Fourcade, Marion; Healy, Kieran	2013	Accounting Organizations And Society	38	8	320	24.6

16	The corporate propensity to save	Riddick, Leigh A.; Whited, Toni M.	2009	Journal of Finance	64	4	308	18.1
17	The impact of climate risk on firm performance and financing choices: An international comparison	Huang, Henry He; Kerstein, Joseph; Wang, Chong	2018	Journal of International Business Studies	49	5	295	36.9
18	The effect of legal environment on voluntary disclosure: Evidence from management earnings forecasts issued in US and Canadian markets	Baginski, SP; Hassell, JM; Kimbrough, MD	2002	Accounting Review	77	1	270	11.3
19	Chain liability in multitier supply chains? Responsibility attributions for unsustainable supplier behavior	Hartmann, Julia; Moeller, Sabine	2014	Journal of Operations Management	32	5	266	22.2
20	Towards a more balanced treatment of culture in international business studies: The need for positive cross-cultural scholarship	Stahl, Guenter K.; Tung, Rosalie L.	2015	Journal of International Business Studies	46	4	253	23.0

Based on the **Citation Trend**, the average citations per year for the top 20 most cited articles from **1996 to 2025** peaked in **2009 and 2010**, and **this** indicates highly influential works. A notable increase in citation impact was observed after **2013**.

The surges in citation impact between 2009–2010 and the sustained increase post-2013 signify a convergence of real-world occurrences (financial crisis), academic advancements (behavioural finance), and policy significance (household debt concerns). This period marks a time when research on the inclination towards indebtedness gained both academic importance and socio-economic urgency, leading to increased citation rates for essential papers in the discipline.

As for the **Co-Citation Network**, **Bates et al. (2009)** and **Campello et al. (2010)** have strong co-citation links, indicating their influence on similar research areas. The robust co-citation of Bates et al. (2009) and Campello et al. (2010) underscores their essential impact on comprehending financial behaviour under constraints. Their connection in the co-citation network illustrates how corporate finance research has significantly influenced investigations into household financial fragility, debt inclination, and the importance of financial flexibility in navigating economic shocks. This connection highlights the transdisciplinary and foundational aspects of these works within the wider intellectual domain of indebtedness research. Mian et al. (2013) and Hoberg et al. (2014) were closely connected, suggesting shared research themes on financial flexibility and household finance. Similarly, **Goetz & Gupta (1996)** and **Galor & Moav (2004)** highlight early research connections in development economics.

As for the **Keyword Analysis**, the collected data visualises the most common research themes in the top-cited articles. The most dominant topics were **Financial Constraints**, **Cash Holdings**, and **Household Finance**. Emerging themes include **Climate Risk**, **Corporate Social Responsibility**, and **Equity Capital**, suggesting a shift in research focus. Also, articles on **Debt Enforcement** and **Lending Relationships** indicate a strong interest in regulatory and institutional factors affecting indebtedness.



**Table 2.** The 10 most influential and the 10 most prolific authors

Rank	Author	No of citations	Rank	Author	No of documents
1	Nenkov, Gergana Y.	243	1	Jiraporn, Pornsi	5
2	Egger, Peter	89	2	Uduji, Joseph Ikechukwu	5
3	Oh, Inha	89	3	Kara, Alper	4
4	Agarwal, Sumit	85	4	Nenkov, Gergana Y.	3
5	Jiraporn, Pornsi	65	5	Egger, Peter	3
6	Treepongkaruna, Sirimon	61	6	Oh, Inha	3
7	Rahman, Mahfuzur	56	7	Agarwal, Sumit	3
8	Kara, Alper	50	8	Treepongkaruna, Sirimon	3
9	Bialowolski, Piotr	46	9	Rahman, Mahfuzur	3
10	Hasan, Mostafa Monzur	36	10	Bialowolski, Piotr	3

Notes: Minimum number of documents of an author = 3; minimum number of citations of an author = 5

Based on the above table of the **Most Influential Authors** (by citations) and **Most Prolific Authors** (by publications), **Nenkov, Gergana Y.** was deemed the most influential author with **243 citations**, despite having only **3 documents**. **Jiraporn, Pornsi** and **Uduji, Joseph Ikechukwu** were the most prolific, each with **5 publications**. Other authors also appeared on both lists, indicating significant impact and productivity.

**Table 3.** The top 10 most impactful and the top 10 highest-producing sources

Rank	Source	No of citations	Rank	Source	No of documents
1	Journal of International Business Studies	1364	1	Journal of Corporate Finance	31
2	Journal of Financial Economics	1224	2	Applied Economics	19
3	Journal Of Corporate Finance	1024	3	Journal of Banking & Finance	18
4	World Development	992	4	Small Business Economics	16
5	Small Business Economics	573	5	Pacific-Basin Finance Journal	15
6	Accounting Review	558	6	Review of Quantitative Finance And Accounting	15
7	Journal of Banking & Finance	509	7	Managerial Finance	13
8	Journal of Economic Psychology	429	8	Finance Research Letters	12
9	Review of Economic Studies	318	9	Journal of International Business Studies	11
10	Finance Research Letters	259	10	Journal of Business Finance & Accounting	11

Notes: Minimum number of documents of a source = 5; minimum number of citations of a source = 5

Based on the above table for **Most Impactful Sources** (by citations) and **Most Productive Sources** (by publications), the **Journal of International Business Studies** was the most **impactful** with **1,364 citations** but ranked lower in productivity with **11 documents**. **Journal of Corporate Finance** led in **productivity** with **31 publications**, making it a key

venue for research on indebtedness. **Small Business Economics** appeared in both lists, indicating a strong influence on both impact and volume.

**Table 4.** The top 10 most influential and the top 10 most productive organizations

Rank	Organization	No of citations	Rank	Organization	No of documents
1	National Bureau of Economic Research	1136	1	National Bureau of Economic Research	14
2	Princeton University	1017	2	New York University	11
3	New York University	1016	3	Xiamen University	11
4	University of Chicago	992	4	Centre for Economic Policy Research	10
5	The Ohio State University	831	5	Renmin University of China	10
6	National University of Singapore	800	6	University of Chicago	9
7	Harvard University	787	7	National University of Singapore	9
8	Boston College	713	8	The World Bank Group	9
9	The World Bank Group	699	9	University of Michigan	9
10	Georgetown University	605	10	Massey University	9

Notes: Minimum number of documents of an organization = 5; minimum number of citations of an organization = 10

As for **Most Influential Organizations** (by citations) and **Most Productive Organizations** (by publications), the **National Bureau of Economic Research (NBER)** was both **the most cited (1,136 citations)** and **the most productive (14 publications)**, highlighting its central role in research on indebtedness. **New York University (NYU)** and the **University of Chicago** were both **highly influential and productive**, indicating strong academic output and impact. **The World Bank Group** ranked high in productivity (**9 documents**) but has relatively fewer citations compared to NBER and Princeton.

**Table 5.** The top 10 most influential and the top 10 highest-producing countries

Rank	Country	No of citations	Rank	Country	No of documents
1	USA	12676	1	USA	356
2	China	3409	2	China	164
3	England	2537	3	England	108
4	Germany	1448	4	Italy	72
5	Italy	1406	5	Australia	66
6	Canada	1146	6	Germany	57
7	Australia	1074	7	France	46
8	Singapore	993	8	India	39
9	France	681	9	South Korea	38
10	Switzerland	675	10	Canada	34

Notes: Minimum number of documents of a country = 5; minimum number of citations of a country = 50

Based on the above table of Most Influential Countries (by citations) and Most Productive Countries (by publications), the USA dominated both in citations (12,676) and publications (356), making it the clear leader in research on indebtedness. China was the second most influential (3,409 citations) and productive (164 publications), showing strong research growth. Meanwhile, England maintained a high ranking in both impact and productivity, while Italy and Australia were also notable contributors. Switzerland ranked in influence but not in productivity, indicating a smaller but high-impact research output.

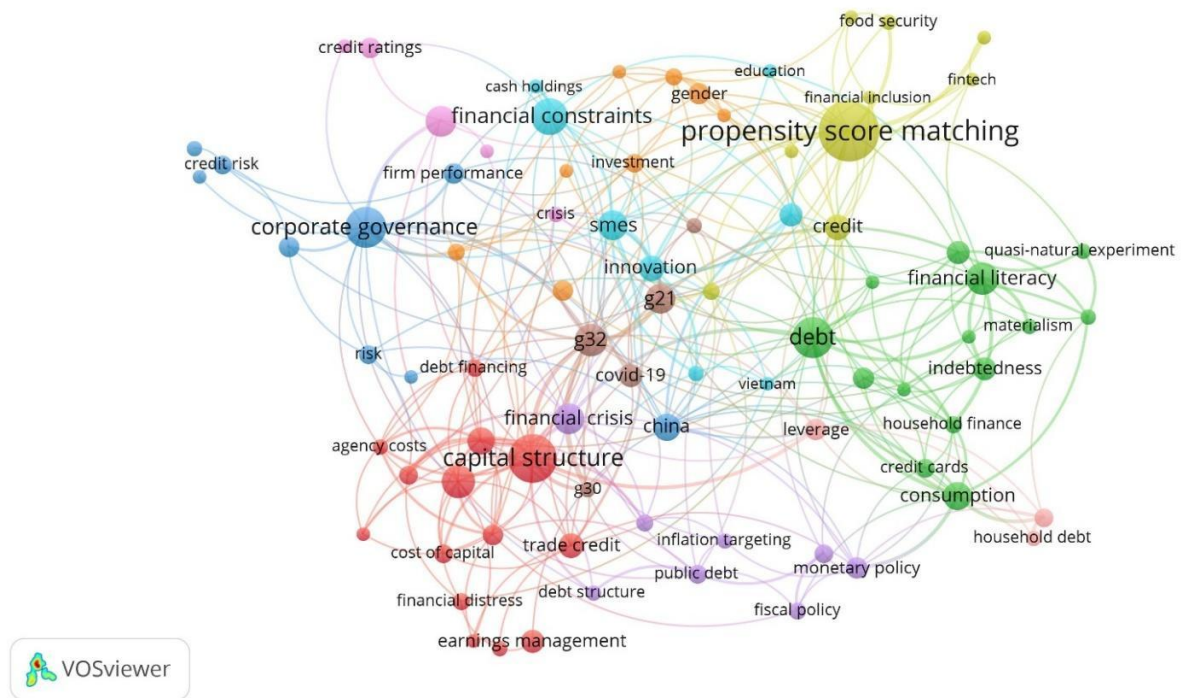
#### 4.3 Author keywords co-occurrence analysis

**Table 6.** Author keywords co-occurrences

C	AK	O	TL S	L	C	AK	O	TLS	L
<b>1 (Red)</b>	Capital structure	34	29	15	<b>5 (Purple)</b>	Financial crisis	18	20	15
	Cost of debt	20	16	15		Monetary policy	11	13	11
	Information asymmetry	15	23	14		Public debt	9	12	10
	Trade credit	13	12	11		Economic growth	9	7	5
	Earnings management	12	2	2		Emerging markets	8	6	5
	Debt maturity	10	14	12		Fiscal policy	8	6	5
	Credit rating	9	9	5		Debt structure	7	6	4
	Cost of capital	9	6	5		Inflation targeting	7	5	5
	Debt financing	8	4	4	<b>6 (Turquoise Blue)</b>	Financial constraints	23	16	13
	Financial distress	8	4	4		SMEs	17	25	17
	Agency costs	7	12	9		Innovation	14	21	13
	Default risk	7	4	4		Entrepreneurship	12	15	12
	Social capital	6	5	5		Credit constraints	7	8	6
	Reputation	6	4	4		Vietnam	6	6	6
	Debt	27	32	21		Cash holdings	6	6	4
	Financial literacy	19	20	13		Education	6	4	4
<b>2 (Green)</b>	Consumption	16	21	12	<b>7 (Orange)</b>	Gender	11	7	7
	Microfinance	12	12	9		Dividend policy	10	3	3
	Indebtedness	12	9	7		Investment	9	11	11
	Consumer credit	11	6	5		G34	8	12	9
	Credit cards	9	9	7		Productivity	8	11	10
	Household finance	8	15	10		Access to credit	6	6	5

<b>3 (Royal Blue)</b>	Savings	7	10	6	<b>8 (Brown)</b>	Investment efficiency	6	5	5
	Materialism	7	7	5		Profitability	6	4	4
	Quasi-natural experiment	7	5	3		G32	19	37	23
	Credit constraint	6	7	7		G21	17	20	13
	Microcredit	6	6	6		Covid-19	12	11	9
	Credit card	6	6	4		G30	7	14	7
	Corporate governance	27	25	17		Impact evaluation	7	7	7
	China	15	16	15		Corporate social responsibility	18	8	6
	Firm performance	10	9	8		Credit ratings	10	3	3
	Risk management	10	5	4	<b>9 (Pink)</b>	Crisis	7	6	6
<b>4 (Gold)</b>	Risk	9	6	6		Climate change	6	2	2
	Credit risk	9	5	5		Liability of foreignness	6	2	2
	Audit quality	7	1	1		Leverage	11	12	10
	Bank	6	2	2		Marginal propensity to consume	9	10	6
	Insurance	6	2	2		Household debt	7	5	3
	Propensity score matching	47	28	22					
	Credit	14	14	13					
	India	8	10	10					
	Food security	7	5	3					
	Financial inclusion	6	7	7					
<b>4 (Gold)</b>	Fintech	6	5	5					
	Difference-in-differences	6	5	2					
	Ghana	6	4	4					
	Poverty	6	4	4					

Notes: Minimum occurrences of an author keyword = 6, AK = author keyword, C = cluster, O = occurrences, TLS = Total link strength, L = Link.



**Fig. 3** Author keywords co-occurrence visualization map

Notes: Minimum occurrences of an author keyword = 6.

Table 6 documents the author's keywords co-occurrence, and Fig. 3 illustrates its visualisation map. Nine different clusters were revealed by the bibliometric analysis of author keyword co-occurrences; each cluster corresponded to a particular study issue concerning the propensity towards indebtedness. Cluster 1 (Red) represented research themes related to corporate debt architecture, which focuses on the structural determinants of corporate debt decision-making. The keywords include capital structure, cost of debt, information asymmetry, debt maturity, and trade credit (Lioka & Yamada, 2023; Sony & Bhaduri, 2018; Wu et al., 2024). This cluster emphasises how businesses balance costs and risks when managing their debt structures. It also investigates how trade credit and information asymmetry influence business financing tactics. Debates over the best debt-equity ratios in imperfect markets, specifically how asymmetric information influences the choice of short-term debt instruments, were reflected in the high TLS for capital structure and information asymmetry. The popularity of trade credit indicates that supply-chain financing has been studied as a debt alternative.

The consumer debt dynamics that account for the behavioural factors that contribute to household debt accumulation are represented by Cluster 2 (Green). It comprises key terms such as debt, financial literacy, consumption, indebtedness, and consumer credit. This theme looks into how consumer debt is affected by personal habits and financial literacy (Brown, 2021; Potrich & Vieira, 2018). With a focus on micro-level debt behaviour, this cluster connects excessive debt in consumption-driven economies to a lack of financial literacy (Santos, Mendes-Da-Silva & Gonzalez, 2018). It also highlights issues like credit card use and microfinance in both developed and developing economies. Cluster 3 (Royal Blue) was associated with the governance-risk relationship, which focuses on the quality of institutional governance and risks associated with debt. Corporate governance, risk management, credit risk, and company performance were the associated keywords. This cluster links corporate outcomes and financial risks to governance methods (Shakri, Yong & Xiang, 2025; Mendoza-Velázquez, Ortuño-Barba & Conde-Cortés, 2022). Additionally, it shows how poor governance can derail a company's performance and raise credit concerns.

The progress in the methodological advancements in credit studies is emphasised in Cluster 4 (Gold). The context of debt accessibility research used the key terminology of propensity score matching and financial inclusion, as well as difference-in-differences and causal inference methodologies. This cluster of research is explicitly geared toward cutting-edge techniques (i.e., propensity score matching) to examine the impact of financial inclusion policies and other initiatives, including affordable financing, on the public (Gershon et al., 2020; Mensah et al., 2022). In contrast, Cluster 5 (purple) was the macroeconomic debt contagion theme that focuses on a systemic debt concern and policy responses. The primary keywords were inflation targeting, fiscal policy, public debt, and financial crisis. This cluster was on macroeconomic variables that play a role in debt crises. It investigates how fiscal and monetary policies, together with the government's management of public debt, would lower systemic risk (Hashem & Fahmy, 2019; Gertler, Kiyotaki & Prestipino, 2020; Lu et al., 2025).

Cluster 6 (Turquoise Blue) was related to the SME financing constraints, which were about the impediments in the availability of small business credit. Keywords include financial constraints, SMEs, innovation, and entrepreneurship. The problem this cluster aimed to explore is the difficulties that SMEs face in procuring financing and how these limitations affect entrepreneurship and innovation (Archer, Sharma & Su, 2020; Chiappini et al., 2022). Cluster 7 (Orange) focused on the gendered perspectives on debt. The associated keywords were investment efficiency, dividend policy and gender. This cluster investigated the gender-specific dynamics in financial decision-making, in particular, how gender can influence financial behaviour and decision-making in terms of credit and investment.

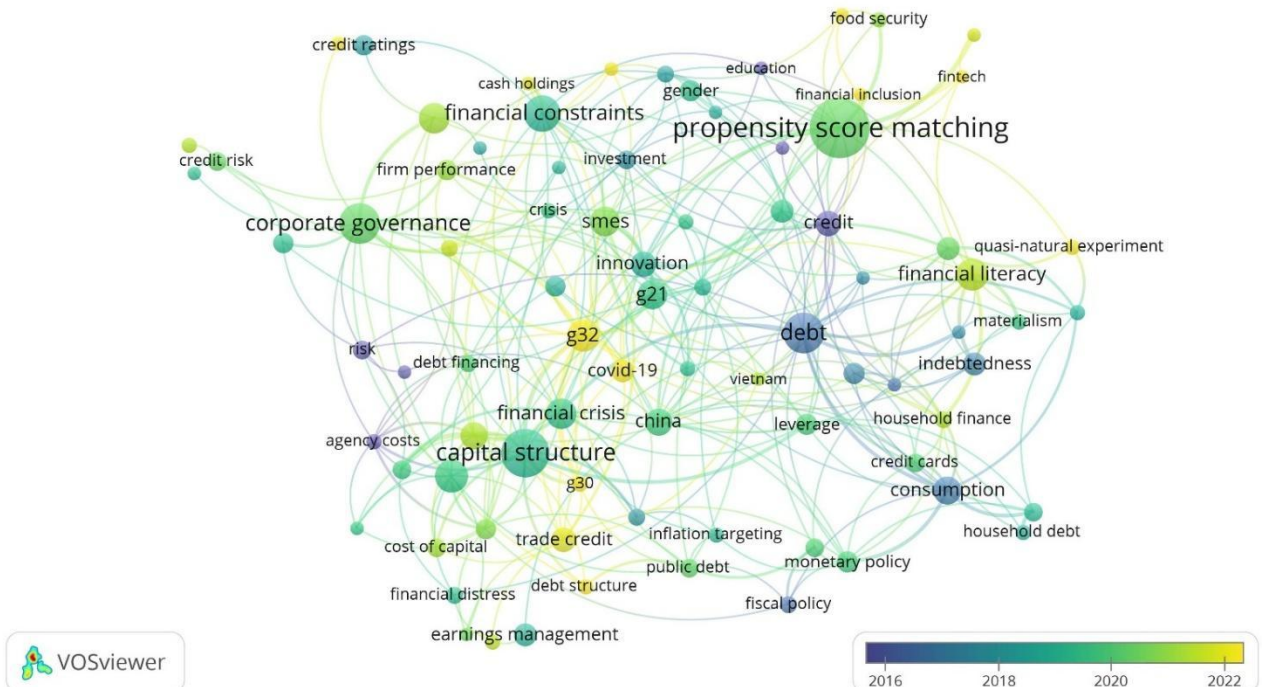
The theme of Cluster 8 (Brown) was pandemic-era debt shocks. This cluster examined crisis-driven vulnerabilities in the corporate and banking sectors using the keywords COVID-19, G32 (corporate finance), and G21 (banking). Related research looks into how the COVID-19 pandemic has affected banking sector vulnerabilities and corporate liquidity difficulties. Lastly, Cluster 9 (Pink) linked the subject of sustainability and social responsibility to debt. Household debt, climate change, and corporate social responsibility were among the assigned keywords. This cluster connected the social and environmental aspects of debt to more general sustainability concerns, such as corporate social responsibility and the effects of financial decisions on the environment.

**Table 7.** Author keywords evolution

AK	Avg. pub. Year	AK	Avg. pub. Year
G30	2023.7	Social capital	2019.5
Financial inclusion	2023.3	G21	2019.5
Covid-19	2023.3	Financial crisis	2019.4
G32	2022.9	Impact evaluation	2019.4
Fintech	2022.2	Entrepreneurship	2019.4
Investment efficiency	2022.2	Gender	2019.3
Debt structure	2022.1	Risk management	2019.2
Climate change	2022.0	Bank	2019.2
Quasi-natural experiment	2021.9	Credit constraints	2019.1
Ghana	2021.8	Financial distress	2019.1
Trade credit	2021.7	Capital structure	2019.1
Cash holdings	2021.7	Financial constraints	2019.0
Difference-in-differences	2021.5	India	2019.0
G34	2021.4	Inflation targeting	2019.0
Default risk	2021.3	Marginal propensity to consume	2019.0
Financial literacy	2021.2	Earnings management	2018.8
Vietnam	2021.2	Profitability	2018.8

Audit quality	2021.1	Innovation	2018.8
Household finance	2021.1	Savings	2018.7
Information asymmetry	2021.1	Household debt	2018.7
Cost of capital	2021.0	Dividend policy	2018.7
Corporate responsibility	2020.9	Access to credit	2018.5
Firm performance	2020.9	Liability of foreignness	2018.3
Food security	2020.9	Productivity	2018.1
Debt maturity	2020.6	Credit ratings	2018.1
SMEs	2020.6	Emerging markets	2017.8
Reputation	2020.3	Investment	2017.7
Microfinance	2020.3	Credit constraint	2017.5
Credit risk	2020.2	Credit card	2017.5
Propensity score matching	2020.2	Consumer credit	2017.3
Corporate governance	2020.2	Indebtedness	2017.2
Public debt	2020.1	Consumption	2017.0
Credit cards	2019.9	Debt	2016.8
Economic growth	2019.9	Microcredit	2016.7
Debt financing	2019.9	Fiscal policy	2016.6
Leverage	2019.8	Credit	2015.9
China	2019.7	Poverty	2015.7
Monetary policy	2019.7	Education	2015.7
Credit rating	2019.7	Risk	2015.2
Cost of debt	2019.6	Insurance	2013.7
Materialism	2019.6	Agency costs	2012.6
Crisis	2019.6		

Notes: Minimum occurrences of an author keyword = 6, AK = author keyword.



**Fig. 4** Author keywords co-occurrence overlay visualization map

Notes: Minimum occurrences of an author keyword = 6

Table 7 and Fig. 4 document the author keyword evolution and author keywords co-occurrence overlay visualisation from 2012 to 2023. There were clear chronological trends



and conceptual changes in the development of keyword themes associated with an inclination toward indebtedness. The term 'indebtedness' peaked around 2017.2, but related phrases like 'household debt' (2018.7) and 'consumer credit' (2017.3) later acquired traction. This implies that the focus gradually shifted from general debt to debt categories that are specific to a certain situation.

The keyword trends highlight the presence of conceptual shifts in the field of study. Before 2018, the studies were dominated by fundamental terms such as 'poverty' and 'microcredit.' This early focus is aligned with studies associated with over-indebtedness to systematic socio-economic factors. From 2020 to 2023, the presence of methodological advancements witnessed the emergence of terms like 'propensity score matching' and 'quasi-natural experiment,' showing heightened rigour in the causal analysis of debt-related behaviours. Keywords like 'financial inclusion' and 'COVID-19' emphasise the latest focus on accessibility frameworks and macro-level disruptions. Terms like 'climate change' and 'materialism' from 2022 and 2019 showed cross-disciplinary connections and the advancement of research into the behavioural and environmental causes of debt.

## **5.0 CONCLUSION**

This study aimed to analyse the bibliometric literature regarding the trends in debt propensity over fifty years, specifically from 1970 to 2025. The purpose was to identify prominent academic publications and research trends within the current literature. The research commenced with an academic inquiry utilising the WoSCC database, which yielded a total of 4,702 papers pertinent to the research domain of interest. After the search, the mapping was executed using the VOSviewer. Then, the most esteemed and impactful investigations that have substantially contributed to the advancement of the field were examined and condensed. The analysis of author keywords co-occurrence and bibliographic coupling categorised literature into clusters and themes, elucidating the significant evolution of connected relationships and providing insights into future research topics that require attention. Through the analysis of existing research clusters and themes, we identified the evolution of the contemporary literature. In addition, terms like 'climate change' and 'materialism' demonstrate interdisciplinary links and the progression of study into the behavioural and environmental determinants of debt.

The findings derived from this bibliometric analysis hold considerable significance for policymakers and researchers alike. The recognition of multi-disciplinary themes—such as the convergence of debt tendency with climate change, materialism, and behavioural economics—indicates that indebtedness cannot be resolved exclusively through financial instruments or literacy initiatives. Policymakers ought to use integrated strategies that encompass environmental sustainability, consumer behaviour, and socio-psychological interventions in the formulation of debt prevention and financial education initiatives. Understanding the impact of materialistic ideals and climate-induced financial instability on borrowing behaviour may guide the development of more nuanced and targeted public policies.

Moreover, the theme clusters identified through keyword co-occurrence and bibliographic coupling indicate nascent research domains that necessitate additional scholarly investigation. This encompasses the function of digital finance technology, the influence of global catastrophes (such as pandemics or climatic shocks) on debt behaviour, and the increasing significance of financial resilience and well-being. Future studies may investigate how marginalised or underrepresented individuals feel and manage indebtedness, particularly within the context of swiftly changing economic and technological landscapes.



Nevertheless, some limitations must be recognised. The analysis was exclusively based on data obtained from the WoSCC, which, although extensive, may not encompass all pertinent literature from emerging economies or non-English language sources. Secondly, bibliometric methodologies inherently emphasise quantitative impact (e.g., citation counts), possibly neglecting high-quality, creative research that has not yet achieved broad recognition. Other than that, the utilisation of VOSviewer for clustering offers a valuable representation of research themes; however, the interpretation of clusters is fundamentally subjective and may differ based on parameter configurations and the researcher's viewpoint.

Notwithstanding these constraints, this study provides a solid basis for comprehending the intellectual framework and development of research concerning the inclination toward indebtedness. This facilitates future researchers in undertaking more sophisticated qualitative or mixed-methods studies that explore the reasons, implications, and lived experiences associated with debt. As the global financial landscape evolves due to technological innovation, environmental unpredictability, and socio-political transformations, the demand for interdisciplinary, policy-relevant research in this field will intensify.

## CO-AUTHOR CONTRIBUTION

The authors affirmed that there is no conflict of interest in this article. Author 1 carried out the fieldwork, prepared the literature review, and oversaw the write-up of the whole article. Author 3 wrote the research methodology and did the data entry. Author 2, Author 4 and Author 5 carried out the statistical analysis and interpretation of the results.

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