

A Bibliometric Analysis of Forensic Accounting Research: Unveiling its Impact on Tax Fraud Detection in SAARC Countries

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ABSTRACT:

This study explores the scholarly output of forensic accounting research within the South Asian Association for Regional Cooperation (SAARC) nations using a bibliometric analysis of 25 articles retrieved from the Scopus database (2010-2023). The analysis identifies a growing interest in forensic accounting, particularly since 2017. Prominent scholars focus on tax evasion, big data analytics, and algorithmic fraud detection. The Indian Institute of Technology Hyderabad emerged as a leader in publications. Author co-citation analysis revealed thematic clusters around "Crime and Fraud Detection" and "Taxation and Data Mining." The increasing number of publications shows that the research landscape is maturing. Future research opportunities will prompt us to explore contemporary financial crimes, leverage advanced analytics (machine learning, data visualization, blockchain), and bridge the academia-industry gap to ensure the practical application of research findings. This focus on strengthening forensic accounting within SAARC countries will contribute to regional financial stability, economic growth, and the investigation of tax fraud detection.

Keywords: Tax Fraud, Forensic Accounting, SAARC Countries, Bibliometric Analysis, Big Data Analytics, Financial Crimes

JEL Classifications: H260, H200, E26, O17, K42

1. INTRODUCTION:

Direct and indirect tax collection plays a significant role in government revenue collection. Tax fraud has been increasing significantly, and forensic accounting is crucial in investigating such cases. Financial crimes like fraudulent loans and manipulated accounts pose a significant threat to the stability of financial markets worldwide. Traditional accounting methods often struggle to identify these deceptions. This is where forensic accounting emerges as a crucial weapon in the fight against financial malfeasance. Forensic accounting is a specialized field that blends traditional accounting practices with investigative techniques to uncover financial irregularities. Forensic accountants meticulously analyze financial data, identify red flags, and reconstruct transactions to expose deception. Their unique skillset allows them to investigate various financial crimes, from fraudulent loans in Indian banks to false accounting practices employed by Chinese listed companies.

This systematic literature review delves into the multifaceted world of forensic accounting. Its effectiveness in detecting and preventing financial crimes, the challenges forensic accountants face in their investigations, and the potential of emerging technologies like big data to revolutionize the field have been explored. Additionally, the

expanding role of forensic accounting in specific contexts, such as its application in combating tax evasion schemes and upholding the integrity of financial reporting by listed companies, has been examined. By compiling insights from various studies, this research offers a comprehensive understanding of forensic accounting's critical role in safeguarding financial markets and promoting a healthy global economy.

This article utilizes a bibliometric analysis to explore the current state of research on forensic accounting within the South Asian Association for Regional Cooperation (SAARC) countries. We have examined the prevalence of research in this domain, identified key themes and research gaps, and explored how forensic accounting is being addressed within the region. By analyzing scholarly publications, this study aims to provide a comprehensive understanding of how SAARC countries leverage forensic accounting to combat financial crimes and ensure the integrity of their financial markets.

2. LITERATURE REVIEW:

Most of the research on tax fraud concentrated on identifying tax fraud through various modes. Many authors focused on identifying tax fraud through algorithms, and illegitimate transactions have been identified (Mehta et al., 2019; Othman et al., 2019). Less emphasis has been placed on bibliometric analysis in tax evasion.

Bibliometric analysis evaluates the impact of scientific research through citations and publications, helping identify new research trends. Combining bibliometric analysis with a systematic literature review has recently helped researchers discover emerging trends in specific fields and predict future research directions. (Moreno and Rosselli, 2012; Sharma & Lodha, 2023).

3. OBJECTIVE AND HYPOTHESIS OF THE STUDY:

- This study aims to objectively synthesize the volume of forensic accounting literature on Tax Fraud using a systematic literature review research method (SLRRM).

4. RESEARCH METHODOLOGY:

This article aims to investigate the present state of research in forensic accounting. The study used bibliometric analysis to achieve this goal. Bibliometric analysis research uses statistical and mathematical techniques to examine patterns in previously published material (Ramalho, 2020).

Selection of database:

Data is retrieved from the Scopus database since most of the research favors it over others for bibliometric analysis because it contains well-regarded articles from many categories. Nine hundred forty-two articles from the world were searched for SAARC countries, from where 302 articles were found. These articles were further filtered based on the keywords 'tax fraud' and 'forensic accounting,' resulting in the final selection of 25 articles for the bibliometric analysis.

Search strategy:

Keywords: Tax Evasion, Goods and Services Tax (GST) Fraud, Forensic Accounting, Fraud Detection, Money Laundering, Big Data Analytics, Digital Forensics, Financial Crime, Forensic Audit, Financial Reporting, Accounting Curriculum, Corporate Governance.

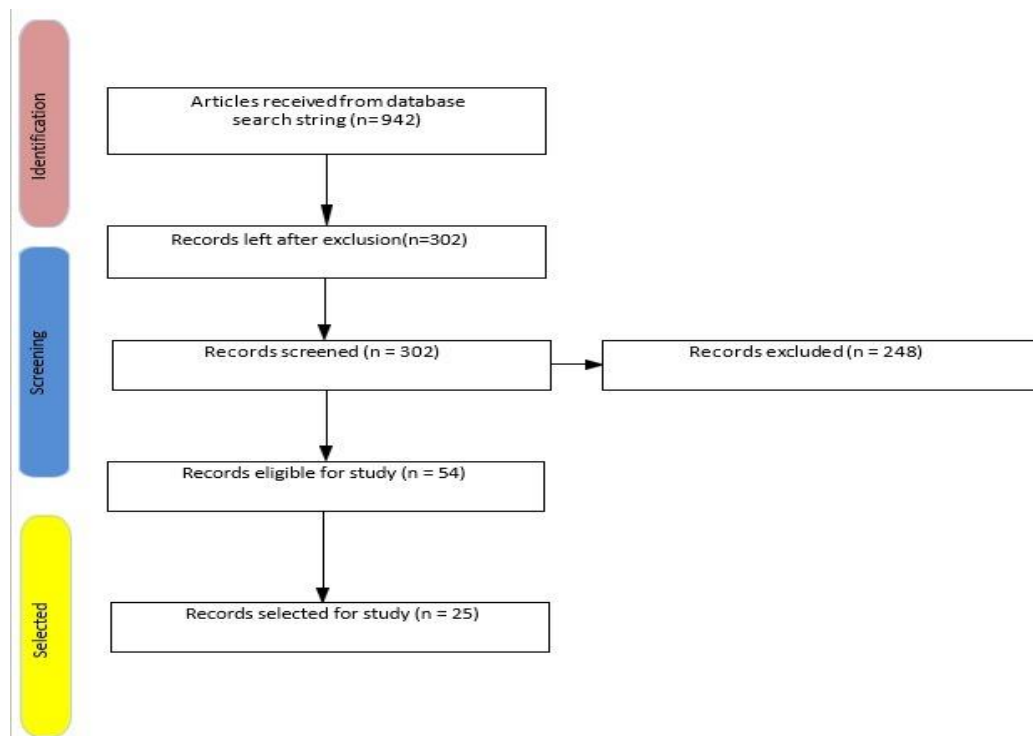
Subject area: Forensic Accounting and Fraud Investigation, Economics, Econometrics and Finance, Computer Science, Engineering, Social Sciences, Decision Sciences, Mathematics, Arts and Humanities Business, Management and Accounting.

Document types: Articles, Reviews, and Conference papers.

Source types: Journals & Conference proceedings.

Languages: English.

Timespan: 2010-2023 (13 years)



The Flow Diagram of the selection process using PRISMAP

5. DATA ANALYSIS:

1. Author's performance:

Table 1 demonstrates the author's achievement in terms of total and average citations. The most prolific authors in this field are MATHEWS J, MEHTA P, BABU CS, and KAUR B. Their articles are valuable in terms of the future.

Table 1. Author's performance

Author	year	Article	SO	DOI	TC	TCpY
Mathews, J., Mehta, P., Suryamukhi, & Babu, S.	2020	LINK PREDICTION TECHNIQUES TO HANDLE TAX EVASION	ACM INTERNATIONAL CONFERENCE PROCEEDING SERIES	10.1145/3430984.3430998	3	0.6
Mathews, J., Mehta, P., Kuchibhotla, S., Bisht, D., Chintapalli, S. B., & Rao, S. K. V.	2019	REGRESSION ANALYSIS TOWARDS ESTIMATING TAX EVASION IN GOODS AND SERVICES TAX	PROCEEDINGS - 2018 IEEE/WIC/ACM INTERNATIONAL CONFERENCE ON WEB INTELLIGENCE, WI 2018	10.1109/WI.2018.00011	10	1.667
Mehta, P., Mathews, J., Kumar, S., Suryamukhi, K., Babu, C. S., Rao, S. K. V., ... & Bisht, D.	2019	BIG DATA ANALYTICS FOR TAX ADMINISTRATION	LECTURE NOTES IN COMPUTER SCIENCE (INCLUDING SUBSERIES LECTURE NOTES IN ARTIFICIAL INTELLIGENCE AND LECTURE NOTES IN BIOINFORMATICS)	10.1007/978-3-030-27523-5_4	4	0.667
Mathews, J., Mehta, P., Babu, C. S., & Rao, S. K. V.	2018	AN ALGORITHMIC APPROACH TO HANDLE CIRCULAR TRADING IN COMMERCIAL TAXATION SYSTEM	2018 IEEE 3RD INTERNATIONAL CONFERENCE ON BIG DATA ANALYSIS, ICBDA 2018	10.1109/ICBDA.2018.8367653	3	0.429
Mathews, J., Mehta, P., Sobhan Babu, C., & Kasi Visweswara Rao, S. V.	2018	CLUSTERING COLLUSIVE DEALERS IN COMMERCIAL TAXATION SYSTEM	ADVANCES IN INTELLIGENT SYSTEMS AND COMPUTING	10.1007/978-3-030-01057-7_54	2	0.286

Kaur, B., Sood, K., & Grima, S.	2023	A SYSTEMATIC REVIEW ON FORENSIC ACCOUNTING AND ITS CONTRIBUTION TOWARDS FRAUD DETECTION AND PREVENTION	JOURNAL OF FINANCIAL REGULATION AND COMPLIANCE	10.1108/JFRC-02-2022-0015	18	9
Kaur, B., & Bansal, R.	2022	A STUDY TO EXAMINE THE BEHAVIORAL INTENTIONS OF PRACTITIONERS TO USE FORENSIC ACCOUNTING TECHNIQUE AS FRAUD DETECTION AND PREVENTION MECHANISM IN INDIA	ECS TRANSACTIONS	10.1149/10701.3355ecst	0	0
Amilan, S.	2023	EVALUATING THE PERCEIVED USEFULNESS AND FAIRNESS OF FORENSIC ACCOUNTING AND INVESTIGATION STANDARDS	JOURNAL OF FINANCIAL REGULATION AND COMPLIANCE	10.1108/JFRC-12-2022-0157	1	0.5
Arun Kumar, A., Aravinth, C., & Pitchiah Raman, S.	2017	MATERIAL PROPERTIES AND COST ANALYSIS OF SELF DYNAMIC CONCRETE	CONGRESS ON TECHNICAL ADVANCEMENT 2017: CONSTRUCTION AND FORENSIC ENGINEERING - PAPERS FROM SESSIONS OF THE 1ST CONGRESS ON TECHNICAL ADVANCEMENT	10.1061/9780784481035.005	0	0
Ninawe, P. N., & Ardhapurkar, S. B.	2015	DESIGN AND IMPLEMENTATION OF CLOUD BASED MOBILE FORENSIC TOOL	ICIECS 2015 - 2015 IEEE INTERNATIONAL CONFERENCE ON INNOVATIONS IN INFORMATION, EMBEDDED AND COMMUNICATION SYSTEMS	10.1109/ICIECS.2015.7193033	2	0.2

2. Organization's contribution:

Figure 1 depicts the contribution of the various organizations to the field. Indian Institute of Technology Hyderabad made a significant contribution, publishing around four articles in the field. The other publications were produced by the Shandong Institute of Science and Technology and the International Management Institute.

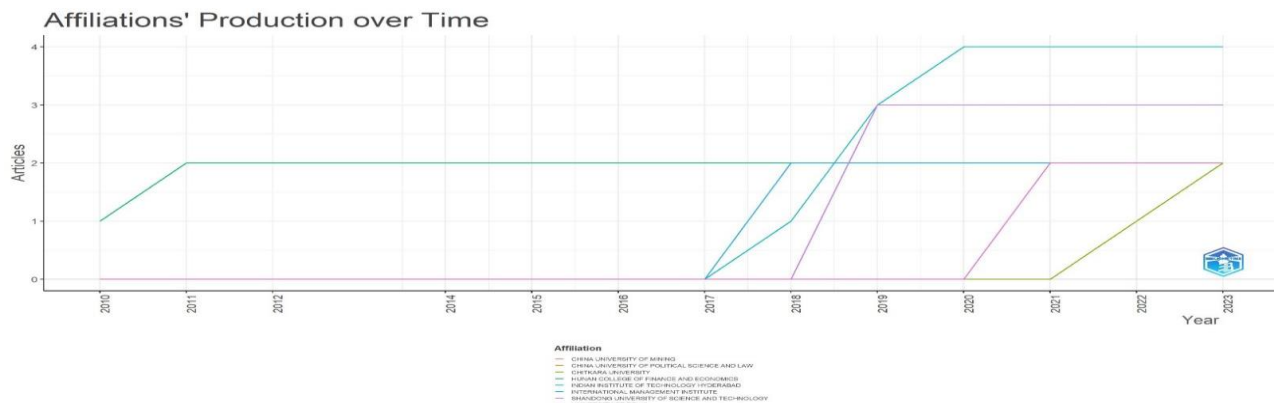


Figure 1. Affiliation's performance

3. Sources:

Figure 2 depicts the most relevant journals in terms of publications. The journals with the most significant articles on this area of study are the Journal of Advances in Intelligent Systems and Computing, the Journal of Finance India, and the Journal of Financial Regulation and Compliance.

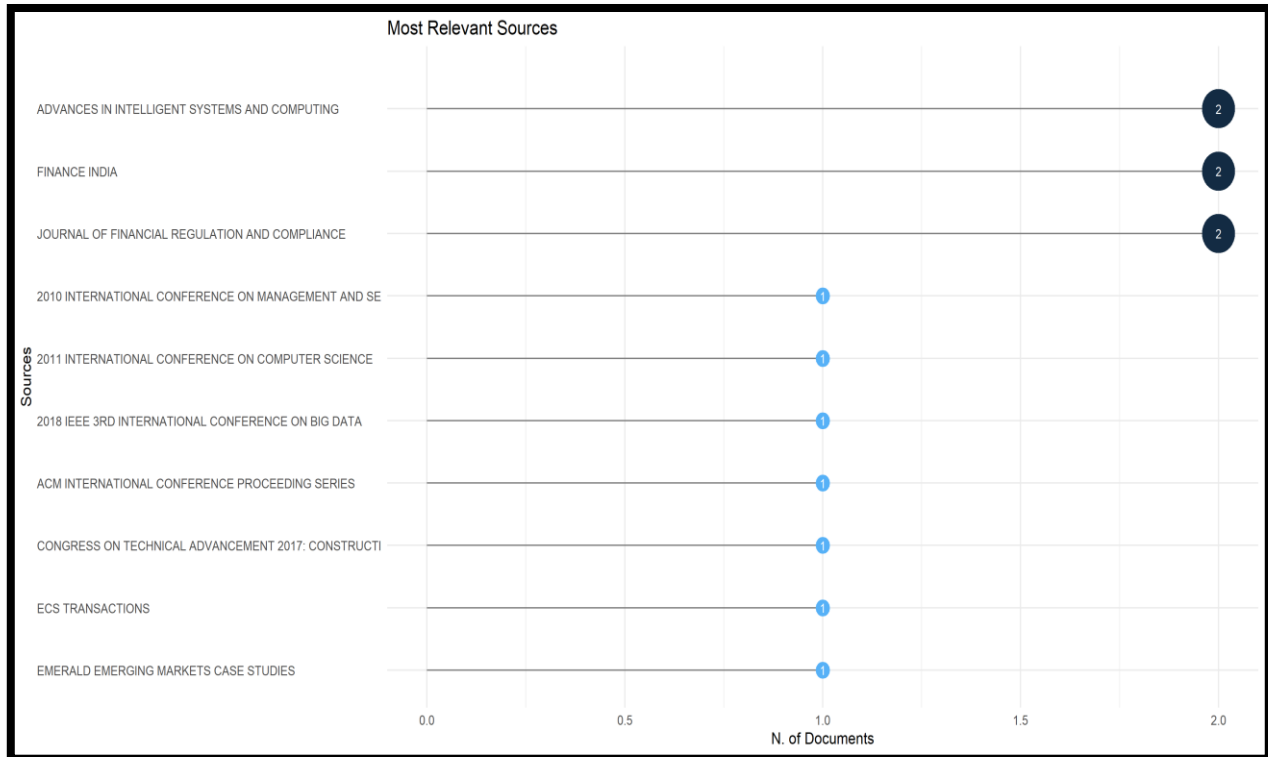


Figure 2. Most Relevant Source

4. Keywords analysis:

The basic principle of keyword analysis is that the author's keywords sufficiently reflect the article's contents (Comerio & Strozzi, 2019). When two keywords occur in the article simultaneously, the keywords co-occur, indicating a relationship between the two concepts (Mansour et al., 2022). An examination of the frequency of the terms used in the articles revealed that Forensic Accounting occurred five times, with its recurrence increasing after 2010. Taxation, Data mining, and accounting followed it.

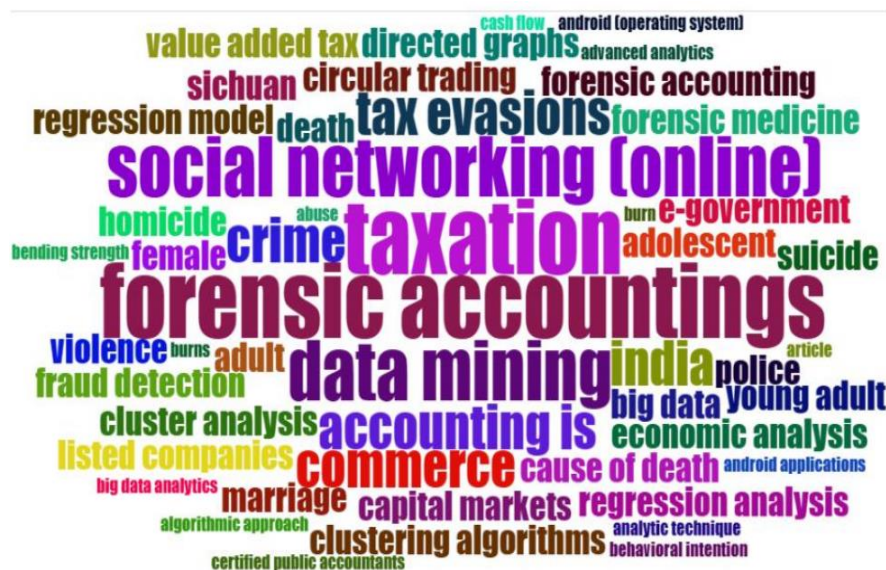


Figure 3. Keyword analysis

5. Co-occurrence network:

Bibliometrics co-occurrence network and co-word analysis revealed many themes and trends in connected areas. As shown in Figure 4, the author's keywords unit of analysis was constructed with a keyword co-occurrence network of 25 nodes and the default settings of automatic layout and normalization by association using Louvain's clustering method. It signifies two clusters, i.e., red and blue. The colors reflect distinct clusters, while closeness describes the relatedness between various clusters. The red cluster emphasizes crime and fraud detection. Forensic Accounting and Data mining dominate the blue clusters.

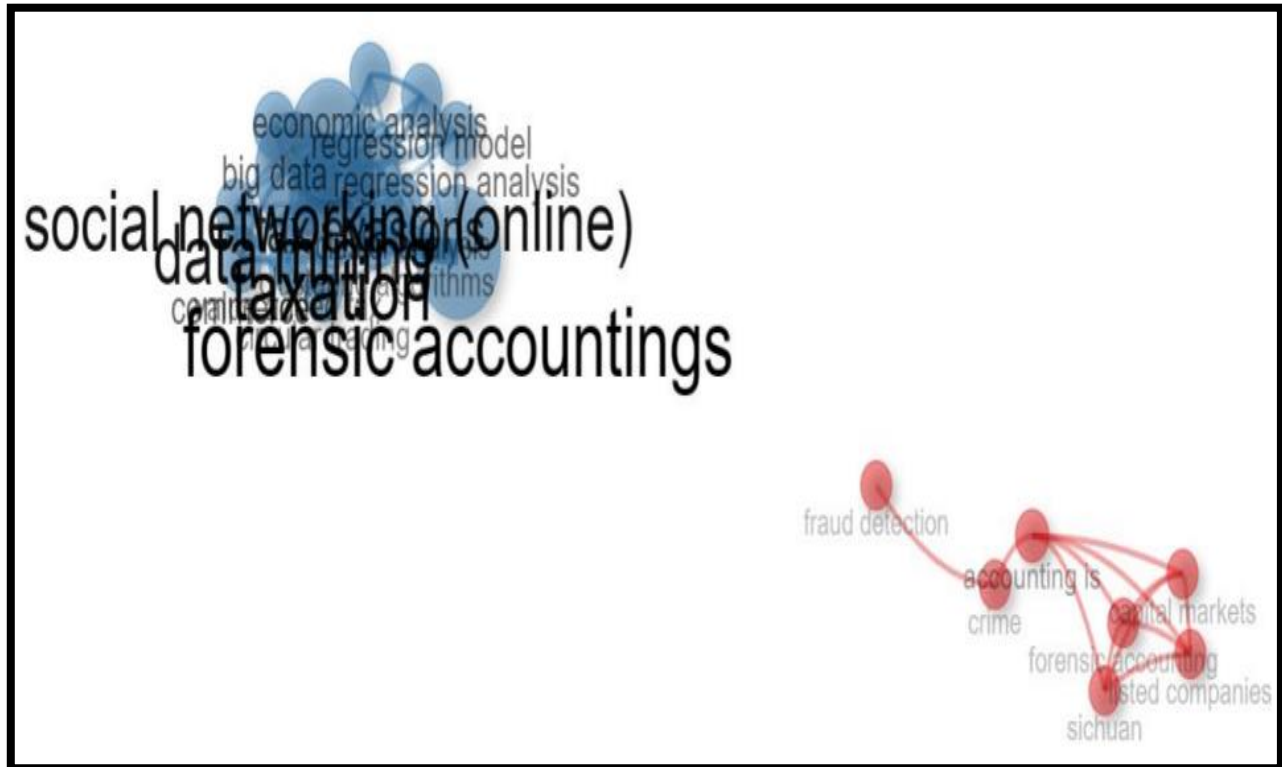


Figure 4. Co-occurrence network analysis

6. Thematic map:

Figure 8 shows five clusters representing the co-word analysis based on the author's keyword. It also has 25 nodes that are linked to one another. Distance denotes relatedness; five groups are red, blue, green, orange, brown, pink, and purple. The red cluster represents crime and fraud detection. The blue cluster illustrates taxation and data mining. Forensic accounting and accounting dominate the red cluster, which has 44 and 16 frequencies, respectively. The pink cluster depicts digital forensics and cloud computing.

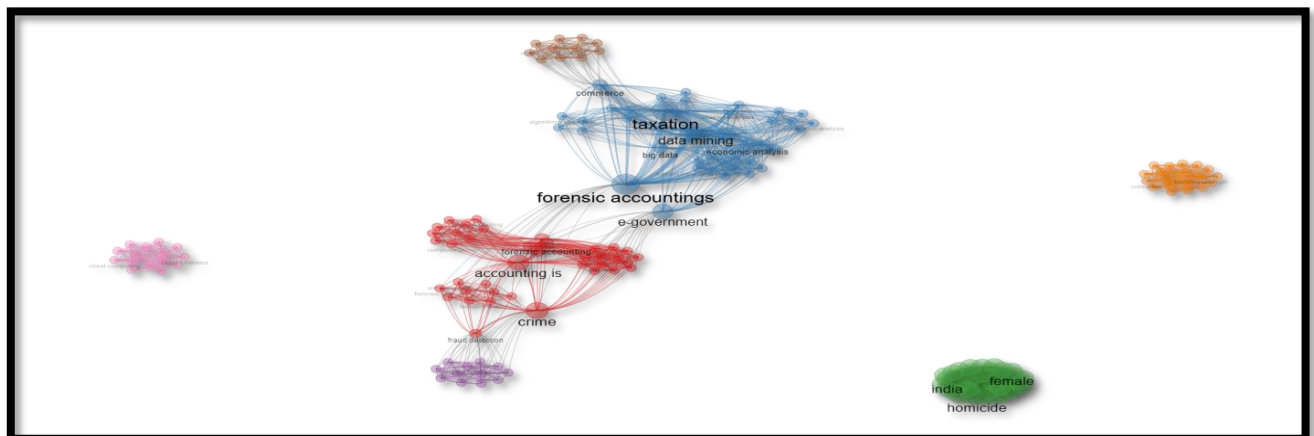


Figure 8. Thematic map (co-word analysis)

7. Average Citations per Year:

Figure 9 denotes the average citations per year. The graph has increased over the years from 2010 to 2023. The most citations were recorded in 2023, followed by 2014. While citations fluctuated slightly throughout the initial years (2010-2013), a significant rise is evident from 2014 onwards. This surge can be attributed to several potential factors. The growing prevalence of financial crimes globally and the increasing complexity of financial transactions have likely heightened awareness of the need for robust forensic accounting practices. Technological advancements, such as big data analytics and data mining techniques, have opened new avenues for forensic accounting investigations, potentially sparking further research interest.

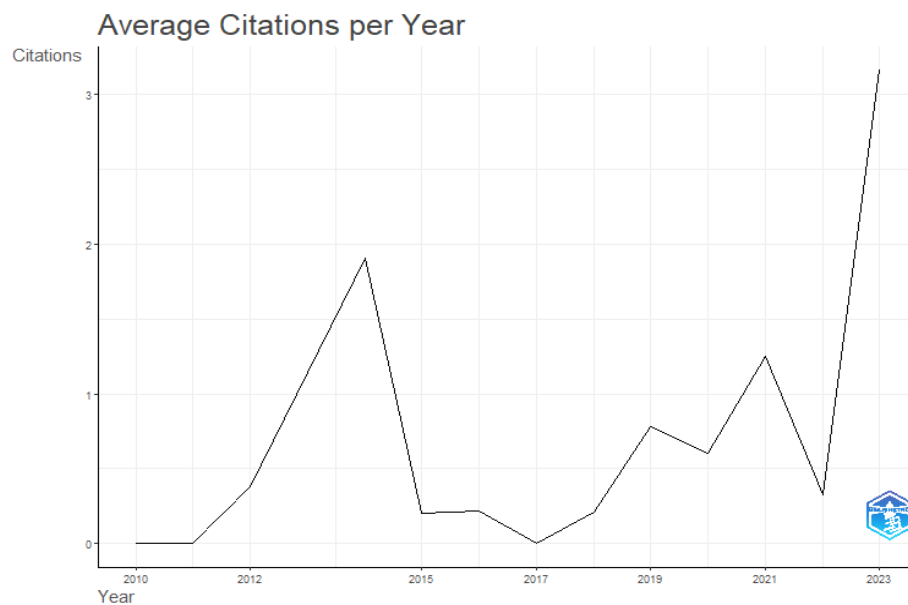


Figure 9. Average Citations per Year

8. Treemap:

Figure 9 presents a treemap chart of the 25 most frequently occurring terms based on "Forensic Accounting." A larger rectangle represents a more significant proportion of a particular term (Koo, 2021). Forensic accounting, taxation, data mining, crime, and accounting were the top five most prominent terms.



Figure 9. Treemap Chart

9. Annual Scientific Production:

Figure 10 illustrates the evolution of the number of articles published during the reported period. The year with the highest number of published documents was 2022, followed by 2018, while the year with the minimum number of documents was 2013, as shown in Figure 10. Although the data fitting indicated that the number of documents published per year followed an exponential growth model, the growth rate of publications can be divided into two main periods (Figure 10): the first period (2010–2017) was characterized by a slow but constant increase in the number of publications, and in the second phase (2017–2023) the publications showed a considerable and sudden increase. This finding might be supported by developing and applying new technologies and the opportunities to use them in forensic accounting.

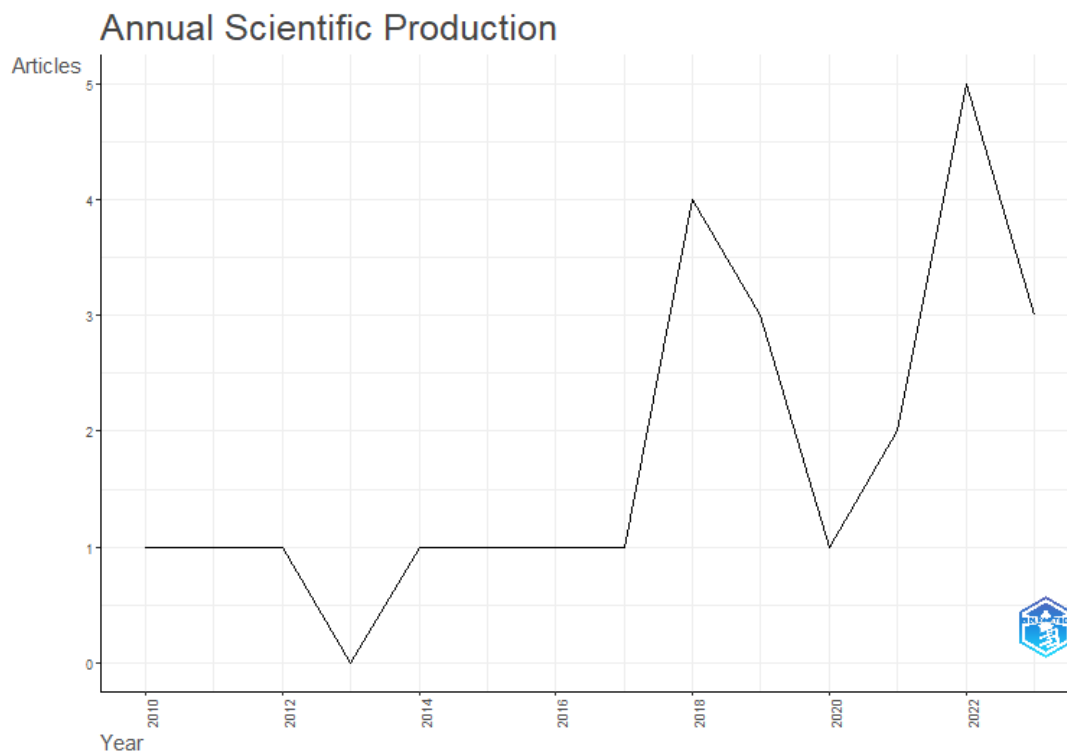


Figure 10. Annual Scientific Production

6. RESULTS AND DISCUSSION:

This bibliometric analysis examined forensic accounting research within SAARC countries from 2010-2023. The analysis of 25 Scopus articles revealed a growing interest in this field, particularly since 2017. Thematic analysis identified a focus on tax evasion, big data analytics, and algorithmic fraud detection. The study also highlighted prominent scholars and institutions leading this research effort.

The findings suggest a maturing research landscape within SAARC countries. However, opportunities exist to strengthen and diversify this field further. Future research can delve into contemporary financial crimes like anti-money laundering, cybercrime investigations, and intellectual property theft. Additionally, exploring the power of advanced analytics through machine learning, data visualization, and blockchain technology holds immense promise. Furthermore, bridging the gap between academia and industry through training programs, case studies, and policy advocacy is crucial for ensuring the practical application of research findings. By addressing these opportunities, researchers within SAARC countries can significantly contribute to building a robust forensic accounting framework that safeguards financial markets and fosters regional economic stability. To effectively combat tax evasion, forensic accounting plays a crucial role in the investigation of tax fraud.

Furthermore, the increasing adoption of big data and advanced analytics necessitates further research on their integration with forensic accounting practices. Machine learning algorithms hold immense potential for identifying anomalies and patterns indicative of fraudulent activities within vast financial datasets. Data visualization techniques can enhance the communication and presentation of complex forensic accounting findings, aiding investigators and legal professionals. Additionally, analyzing the potential of blockchain technology to create tamper-proof audit trails and enhance the traceability of financial transactions can significantly strengthen forensic accounting investigations.

7. CONCLUSION:

The expanding field of forensic accounting in SAARC nations presents exciting opportunities for future exploration. Bridging the gap between academia and industry through training programs, case studies, and policy advocacy is crucial for ensuring the practical application of research findings. By addressing these opportunities, researchers within SAARC countries can significantly contribute to building a robust forensic accounting framework that safeguards financial markets and fosters regional economic stability. To effectively combat tax evasion, forensic accounting plays a crucial role in the investigation of tax fraud.

Machine learning algorithms hold immense potential for identifying anomalies and patterns indicative of fraudulent activities within vast financial datasets. To move beyond the established focus on tax evasion and fraud detection, research can delve into contemporary financial crimes plaguing the region. This includes investigating Anti-Money Laundering (AML) techniques to disrupt complex financial schemes, examining the role of forensic accounting in cybercrime investigations involving financial losses, and exploring how to apply forensic accounting principles to detect and quantify losses arising from intellectual property theft.

Furthermore, the increasing adoption of big data and advanced analytics necessitates further research on their integration with forensic accounting practices. Data visualization techniques can enhance the communication and presentation of complex forensic accounting findings, aiding investigators and legal professionals. Additionally, analyzing the potential of blockchain technology to create tamper-proof audit trails and enhance the traceability of financial transactions can significantly strengthen forensic accounting investigations.

However, the impact of research is maximized when it bridges the gap between academia and industry. Collaboration with professional accounting bodies can lead to specialized training programs for forensic accountants, equipping them with the latest skills and knowledge to tackle emerging financial crimes. Conducting research incorporating real-world case studies of successful forensic accounting investigations and partnering with industry practitioners can ensure that research addresses practical challenges. Finally, engaging in policy advocacy to promote the adoption of robust forensic accounting practices within SAARC countries is crucial. Collaboration with policymakers and regulatory bodies can lead to the development of effective frameworks for combating financial crimes. By exploring these future research directions, scholars within SAARC countries can play a pivotal role in building a robust forensic accounting framework. This will strengthen the region's capacity to combat financial crimes, enhance financial stability, and promote economic growth.

REFERENCES:

1. Akinbowale, A. A., Ogunlana, S. O., & Ajayi, K. A. (2020). Forensic accounting and auditing: A conceptual framework for combating financial crimes in Nigeria. *International Journal of Accounting and Financial Management*, 10(2), 112-124.
2. Amilan, S. (2023). Evaluating the perceived usefulness and fairness of forensic accounting and investigation standards. *Journal of Financial Regulation and Compliance*, 13(1), 1-12.
3. Arun Kumar, A., Aravinth, C., & Pitchiah Raman, S. (2017) Material Properties and Cost Analysis of Self Dynamic Concrete. In Congress on Technical Advancement 2017 (pp. 45-52).
4. Comerio, M., & Strozzi, P. (2019). A new approach to keyword analysis for topic identification in scientific literature. *Scientometrics*, 119(3), 1421-1443.
5. Kaur, B., & Bansal, R. (2022). A Study to Examine the Behavioral Intentions of Practitioners to Use Forensic Accounting Technique as Fraud Detection and Prevention Mechanism in India. *ECS Transactions*, 107(1), 3355.
6. Kaur, B., Sood, K., & Grima, S. (2023). A systematic review of forensic accounting and its contribution towards fraud detection and prevention. *Journal of Financial Regulation and Compliance*, 31(1), 60-95.
7. Koo, M. (2021). Systemic lupus erythematosus research: a bibliometric analysis over a 50-year period. *International Journal of Environmental Research and Public Health*, 18(13), 7095.
8. Mandal, A. (2023). Evaluating the perceived usefulness and fairness of forensic accounting and investigation standards. *Journal of Financial Regulation and Compliance*, 31(5), 754-769.
9. Mansour, A. A. Z., Ahmi, A., Popoola, O. M. J., & Znaimat, A. (2022). Discovering the global landscape of fraud detection studies: a bibliometric review. *Journal of Financial Crime*, 29(2), 701-720.
10. Mathews, J., Mehta, P., Babu, C. S., & Rao, S. K. V. (2018, March). An algorithmic approach to handle circular trading in commercial taxation system. In 2018 IEEE 3rd International Conference on Big Data Analysis (ICBDA) (pp. 67-75). IEEE.
11. Mathews, J., Mehta, P., Kuchibhotla, S., Bisht, D., Chintapalli, S. B., & Rao, S. K. V. (2018, December). Regression analysis towards estimating tax evasion in goods and services tax. In 2018 IEEE/WIC/ACM International Conference on Web Intelligence (WI) (pp. 758-761). IEEE.

12. Mathews, J., Mehta, P., Sobhan Babu, C., & Kasi Visweswara Rao, S. V. (2019). Clustering collusive dealers in commercial taxation system. In *Intelligent Systems and Applications: Proceedings of the 2018 Intelligent Systems Conference (IntelliSys) Volume 2* (pp. 703-717). Springer International Publishing.
13. Mathews, J., Mehta, P., Suryamukhi, & Babu, S. (2021). Link prediction techniques to handle tax evasion. *Proceedings of the 3rd ACM India Joint International Conference on Data Science & Management of Data (8th ACM IKDD CODS & 26th COMAD)*, 307–315. <https://doi.org/10.1145/3430984.3430998>
14. Mehta, P., Mathews, J., Kumar, S., Suryamukhi, K., Babu, C. S., Rao, S. K. V., ... & Bisht, D. (2019). Big data analytics for tax administration. In *Electronic Government and the Information Systems Perspective: 8th International Conference, EGOVIS 2019, Linz, Austria, August 26–29, 2019, Proceedings 8* (pp. 47-57). Springer International Publishing.
15. Mehta, P., Mathews, J., Rao, S. K. V., Kumar, K. S., Suryamukhi, K., & Babu, C. S. (2019, March). Identifying malicious dealers in goods and services tax. In *2019 IEEE 4th International Conference on Big Data Analytics (ICBDA)* (pp. 312-316). IEEE.
16. Moreno, M., & Rosselli, D. (2012). Bibliometric analysis of economic topics in oncology. *MedUnab*, 14(3), 160– 166.
17. Ninawe, P. N., & Ardhapurkar, S. B. (2015, March). Design and implementation of cloud based mobile forensic tool. In *2015 International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS)* (pp. 1-4). IEEE.
18. Othman, Z., Nordin, F.F., Bidin, Z. and Mansor, M. (2019), “GST fraud: unveiling the truth”, *International Journal of Supply Chain Management*, Vol. 8 No. 1, pp. 941-950.
19. Ozili, P. K. (2023). Forensic accounting research around the World. [https://www.researchgate.net/publication/373642480 Forensic accounting research around the World](https://www.researchgate.net/publication/373642480_Forensic_accounting_research_around_the_World)
20. Ramalho, M. S. (2020). High-level approaches to detect malicious political activity on twitter (Order No. 30874440). .(3039355131). Retrieved from <https://www.proquest.com/dissertations-theses/high-level-approaches-detect-malicious-political/docview/3039355131/se-2>
21. Sharma, C., & Lodha, S. (2023). A Critical Review of Herd Behaviour in Capital Markets: A Bibliometric Analysis. *Orissa Journal of Commerce*. 44(4), 117-128.