SHINING A LIGHT ON FINANCIAL TRANSPARENCY: BIBLIOMETRIC INSIGHTS INTO SEGMENT REPORTING

Dilipkumar Suthar
Senior Research Fellow, Gujarat University

ABSTRACT
Segment reporting is a crucial component of financial reporting, allowing stakeholders to gain insights into the performance and risks associated with various business segments. Our purpose in this comprehensive bibliometric analysis is to trace the evolution of segment reporting research from 1981 to 2023, identify influential contributors, and uncover emerging trends. Our findings reveal a substantial growth in publications and citations, particularly after 2015, indicating the increasing significance of segment reporting in the academic community. Key authors, such as those published in the "Journal of International Accounting, Auditing and Taxation" and the "International Journal of Accounting," have significantly shaped the discourse in this field. Highly cited articles emphasize the practical implications of accounting standards and market forces on segment reporting practices.

KEYWORDS: *Segment Reporting, IFRS 8, Disclosure practices, IAS 14, Chief operating Decision maker, Bibliometric analysis*

INTRODUCTION
Consolidated financial statements are no longer sufficient for users to make educated financial decisions due to the increasing complexity of companies(Di Carlo et al., 2016). Analyzing previous performance and forecasting future results has become problematic in significant organizations, where complex operations cover numerous products or market segments(Chen et al., 2007). The specific performances of each operating segment, which display significant variances in terms of returns, risks, and profitability, determine how well these organizations operate overall(Troberg et al., 2010). Unfortunately, conventional consolidated financial statements may hide the cash flows, profitability, risks, and returns connected with these unique sectors (Barneto & Ouvrard, 2015). As a result, stakeholders cannot assess the firm's true financial health since they lack a thorough understanding of all of its aspects(Janet et al., 2022). Thus, the urgency arises to furnish comprehensive segment-wise information for an accurate assessment(Street & Shaughnessy, 1998).

Segment reporting refers to the practice of disclosing financial information about an organization's different business segments in its financial statements(Talha, Sallehhuddin, et al., 2008). By providing detailed information about each segment, segment reporting enables investors, analysts, and stakeholders to understand the financial performance and risks associated with different parts of the organization(Cereola et al., 2017). The reporting of segments typically includes information such as revenues, expenses, assets, liabilities, and other relevant financial data for each segment(Talha, Salim, et al., 2008). The segment information is often presented in a tabular format, allowing users to compare and analyze the performance of different segments within the organization(Kajüter & Nienhaus, 2017).

Segment reporting in India traces its origins back to the implementation of Accounting Standard (AS) 17, aptly named "Segment Reporting," by the ICAI. This milestone was crucial to aligning Indian accounting practices with global standards, particularly IAS 14. However, the evolution of segment reporting practices in India did not stop there. Segment reporting procedures have become more uniform globally as a result of the integration of Indian Accounting Standards (Ind AS) and International Financial Reporting Standards (IFRS). In 2016, the ICAI introduced Ind AS 108, "Operating Segments," which closely mirrors IFRS 8. This standard requires Indian companies to reveal segment data based on the information the CODM reviewed it. It also includes additional disclosure requirements specific to Indian regulations, such as geographical segments. In summary, the evolution of segment reporting standards demonstrates a progression from voluntary disclosures to formal accounting standards. The development of FASB Statement No. 14, IAS 14, FASB Statement No. 131, IFRS 8, and Ind AS 108 has significantly improved the transparency and comparability of segment information.

2. METHODOLOGY
This study used a systematic approach to review literature, avoid bias, and add scientific validity to its findings. We present our analytic processes using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), which supports writers in enhancing systematic

review reporting. We chose PRISMA above other current protocols because of its comprehensiveness, widespread use in multiple fields, and ability to improve review uniformity (Liberati et al., 2009; Pahlevan-Sharif et al., 2019;Chaudhary et al., 2022).

2.1 Establish a Strategy
We additionally employed the methodology of Jesson et al. (2011, p. 12) in our study, which includes the following steps:
- Develop a research question;
- Establish a strategy;
- Perform a search for relevant literature.
- Make use of inclusion and exclusion criteria;
- Perform a quality check; and
- Explore the findings

2.2 Develop a Research Question
A systematic evaluation approach is guided by study objectives that define the inquiry's subject, object, and scope (Booth et al., 2012). As a result, we developed the following study questions:
1. What intriguing trends have emerged in segment reporting practices from 1981 to 2023?
2. Which authors and journals have significantly shaped the field of segment reporting practices with their influential contributions?
3. What notable patterns emerge in terms of authorship and collaboration within the field of segment reporting research?

2.3 Perform a Search for Relevant Literature
We chose Scopus as our primary source for content to assure the scientific quality and inclusiveness of our research. We came up with a preliminary list of keywords associated with our research topic: Segment Reporting, IFRS 8, Segmentation, Operating Costs, Disclosure, SFAS 131 Financial Reporting, Operating Segments, Firm Performance, Financial Performance, Segment Disclosure, IAS 14, IAS 14R, Disclosure Quality, Accounting Standards.We chose articles, review articles, book chapters, and books as our source types. We only considered papers in the disciplines of management, business, and accounting. Furthermore, we omitted publications written in languages other than English to avoid

understanding challenges and improve our research's replicability among the international community. We retrieved articles published between 1983 and 2023.

The search string used in Scopus was as follows: TITLE-ABS-KEY ("Segment reporting" OR "operating segments") AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (SUBJAREA , "BUSI")) We retrieved the data from the Scopus database on June 20, 2023, which resulted in 146 documents.

2.4 Make use of inclusion and exclusion criterion
We thoroughly studied their titles, abstracts, keywords, and, when appropriate, complete texts to identify the relevance of publications and eliminate those deemed irrelevant (Booth et al., 2012). We discovered 128 articles that were judged to be relevant based on our content analysis since they were related to our research requests. We evaluated each article's significance, considering parameters such as the type of writing (e.g., article, conference proceeding, book, chapter), total citations, and citations per year (CPY). Although we did not adhere to strict quantitative guidelines, we considered the relative influence of the articles within their specific study topics/areas. As a result, we identified 33 papers as less relevant and excluded them from further analysis. We then searched for and obtained the full texts of 95 articles. However, we encountered difficulties in accessing 8 publications as they were not available through our institution. As a result, 87 full-text papers were thoroughly scrutinized for evaluation.

2.5 Perform a Quality Check
The study is based only on original research articles and review papers. To maintain the quality of the review, all duplications were checked thoroughly.

2.6 PRISMA Diagram
Figure 1 depicts the stages we took while using a PRISMA diagram that we modified to make it more suitable for a systematic qualitative review (Page et al., 2021). The PRISMA flow diagram depicts the flow of information through the stages of a systematic review. It illustrates the number of records discovered, included, and excluded and the reasons for exclusions.
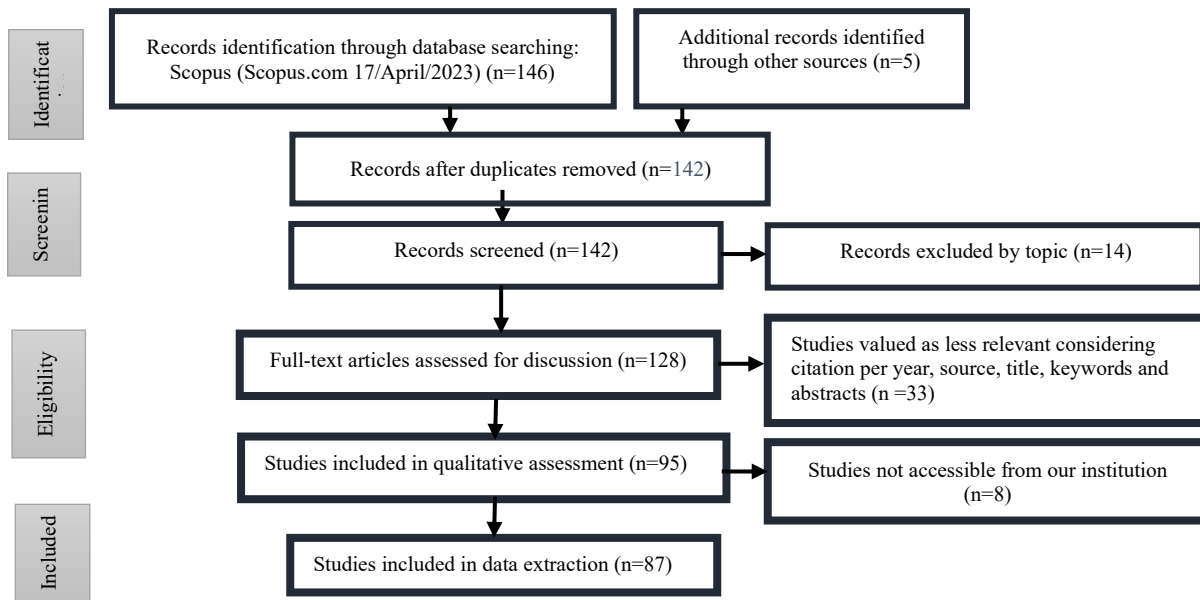
Figure 1: PRISMA Flow Diagram

3.1. Top Ten Countries In Citations

The Table 1 Shows The Total Citations (TC) And Average Article Citations For Various Countries In Segment Reporting Research. The Results Show A Diversified Environment, With The United States And Australia Leading In Terms Of TC, Suggesting Their Significant Research Production, And Both Countries Exhibiting Commendably High Average Article Citations, Highlighting The Influence And Quality Of Their Contributions. Malaysia Shows A Lower TC But Exceptionally High Average Article Citations, Indicating That Its Research Has A Great Impact, Albeit Less In Volume. Singapore's Unusually High Average Article Citations Demonstrate The Extraordinary Effect Of Its Research Per Publication.

Country	TC	Average Article Citations
USA	927	23.2
AUSTRALIA	210	21
MALAYSIA	104	34.7
SINGAPORE	93	93
CANADA	55	18.3
GERMANY	27	9
SPAIN	19	9.5
FINLAND	15	15
NETHERLANDS	15	15
TUNISIA	15	7.5

Table 1: Top 10 Influential Countries in Segment Reporting Research (1983–2023)

3.2 Publication overall growth

Figure 2 depicts the frequency of publication of segment reporting literature by year from 1981 to 2023. Some years have been missing since there was no publication in 1982, 1983, 1985, 1987-1988, 1990, and 1992. The number of publications has risen dramatically throughout the years. After 2015, there was a surge in segment reporting publications. The most successful publication years were 2018 and 2022 when the most papers (10) were published.
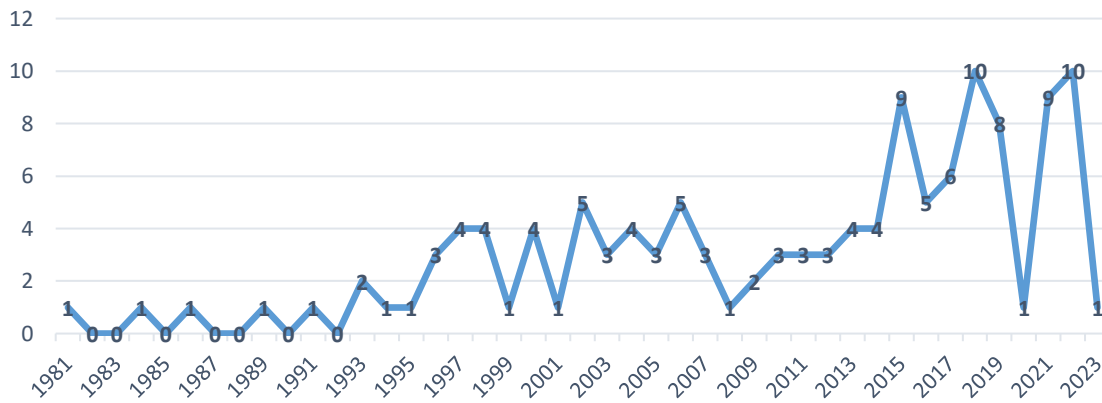
Figure 2. Publications Trend on Segment Reporting Research (1981–2023)

3.3. Top Ten Influential Research Journals

Table 4 lists the top ten research journals in the field of segment reporting literature. It demonstrates that four journals had more than five publications. With 14 publications, the journal "Journal of International Accounting, Auditing, and Taxation" leads the chart, followed by the International Journal of Accounting with 8 articles.

Sources	Articles
JOURNAL OF INTERNATIONAL ACCOUNTING, AUDITING AND TAXATION	14
INTERNATIONAL JOURNAL OF ACCOUNTING	8
ACCOUNTING HORIZONS	6
JOURNAL OF BUSINESS FINANCE AND ACCOUNTING	6
ACCOUNTING REVIEW	5
JOURNAL OF ACCOUNTING RESEARCH	5
JOURNAL OF ACCOUNTING, AUDITING AND FINANCE	5
JOURNAL OF CORPORATE ACCOUNTING AND FINANCE	5
JOURNAL OF ACCOUNTING AND PUBLIC POLICY	4
JOURNAL OF APPLIED BUSINESS RESEARCH	4

Table 2 Most Influential Research Journals

3.4. Keyword Analysis

Figure 3 and 4 describe about authors' keyword analysis, Co-occurrence analysis is a sort of bibliometric mapping that seeks to determine the frequency and patterns of co-occurring terms or keywords in a collection of scholarly literature. This can be accomplished by comparing the frequency with which each term or keyword appears in the literature. This strategy helps find the most important themes or ideas being discussed and illuminating the thematic organization of a research field.

Multiple keywords were considered to analyze co-occurrences, with a minimum requirement of at least 5 occurrences for each term. Figure 4 visually represents the outcome, indicating that 54 keywords successfully met the specified cutoff out of a total of 260 keywords. The size of the ball in the figure signifies the strength of the keyword network, while different shades within the ball represent distinct clusters. Notably, the top five keywords identified in the analysis are "Segment reporting", "IFRS 8", "Management approach", "Financial reporting" and "Disclosure" in descending order. Figure 3 presents a WordMap showcasing potential combinations relevant to the research inquiry to illustrate the associations between keywords further.
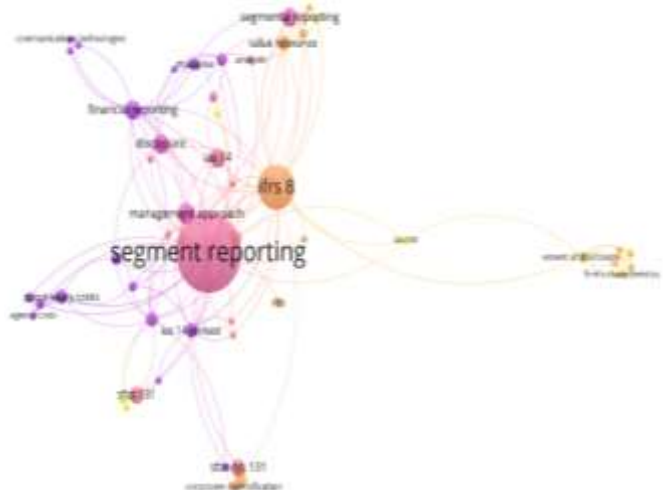
Figure 3 Word Cloud

Figure 4. Co-occurrence network of author keywords

3.5. Three-Factor Analysis - Sources, Keywords and Countries

Figure 5 provides a visual representation of the interplay across subject topics (keywords), sources, and countries in the research on segment reporting. The analysis highlights the top five subject areas, including segment reporting, IFRS 8, Proprietary costs, SFS 131, geographical disclosure, and their relationship with five key sources: Journal of International Accounting, auditing, and taxation, International Journal of Accounting, Journal of business finance and accounting, accounting horizons, Journal of accounting, auditing, and finance. Notably, these subject matters exhibit a strong connection with the two most influential nations in this field, USA and the Australia. This visualization underscores the significant contributions made by these countries in terms of research output related to segment reporting, emphasizing their prominence in the field.
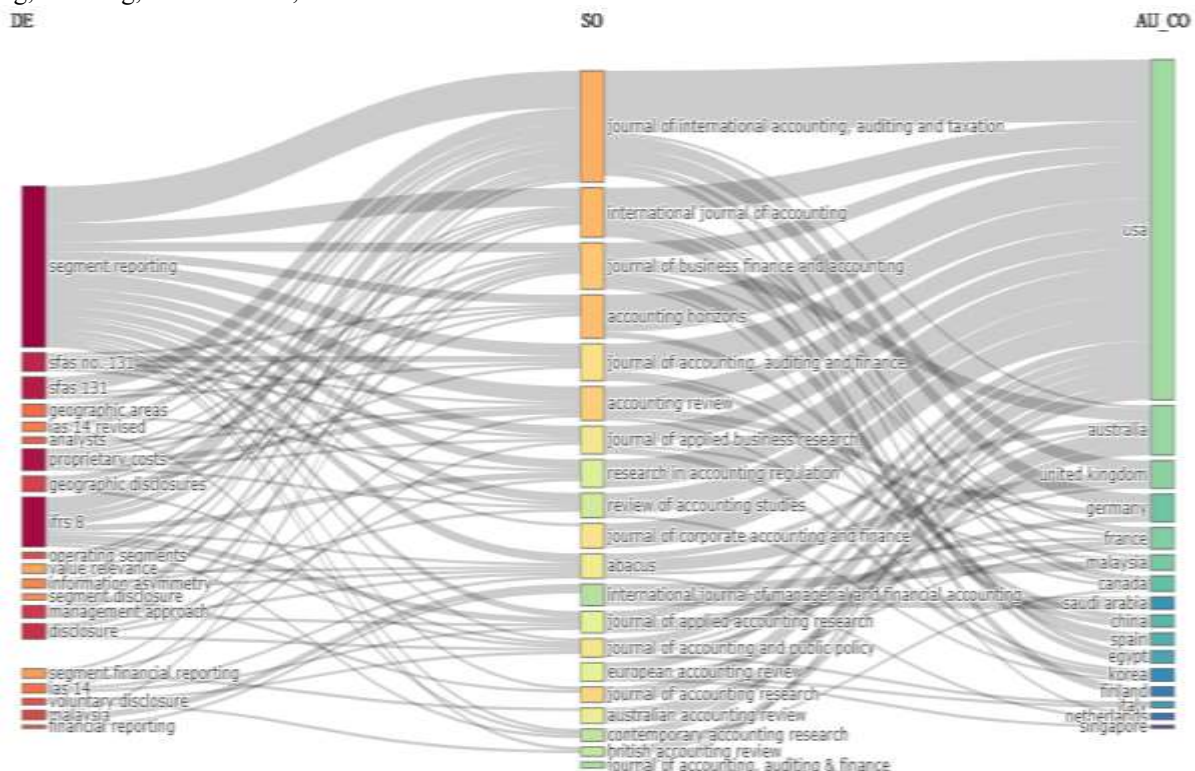

**Figure:5 Three-Factor Analysis - Sources, Keywords and Countries**

3.6. Countries of Corresponding Authors

This table presents a comparative overview of segment reporting research articles collaboration across various countries. It includes data on the number of articles focusing on single-country perspectives (SCP) and multiple-country perspectives (MCP), their frequency within the dataset, and the MCP ratio. Notably, the USA has the highest number of articles (40) with a moderate MCP ratio (0.175), while Australia and the United Kingdom exhibit a more substantial interest in cross-country analysis with higher MCP ratios (0.2 and 0.6, respectively). Conversely, France primarily concentrates on its own practices, Canada emphasizes cross-country studies (MCP ratio of 0.666), and Saudi Arabia exclusively explores MCP. These figures collectively illustrate the global landscape of segment reporting research and the varying international perspectives adopted by researchers in different countries.

Country	Articles	SCP	MCP	Freq	MCP Ratio
USA	40	33	7	0.3125	0.175
AUSTRALIA	10	8	2	0.078125	0.2
UNITED KINGDOM	5	2	3	0.0390625	0.6
FRANCE	4	4	0	0.03125	0
CANADA	3	1	2	0.0234375	0.666
GERMANY	3	3	0	0.0234375	0
MALAYSIA	3	3	0	0.0234375	0
SAUDI ARABIA	3	0	3	0.0234375	1
CHINA	2	1	1	0.015625	0.5
SPAIN	2	2	0	0.015625	0

Table 3 The Intra-Country (SCP) and Inter-Country (MCP) Collaboration Indices During 1982–2023
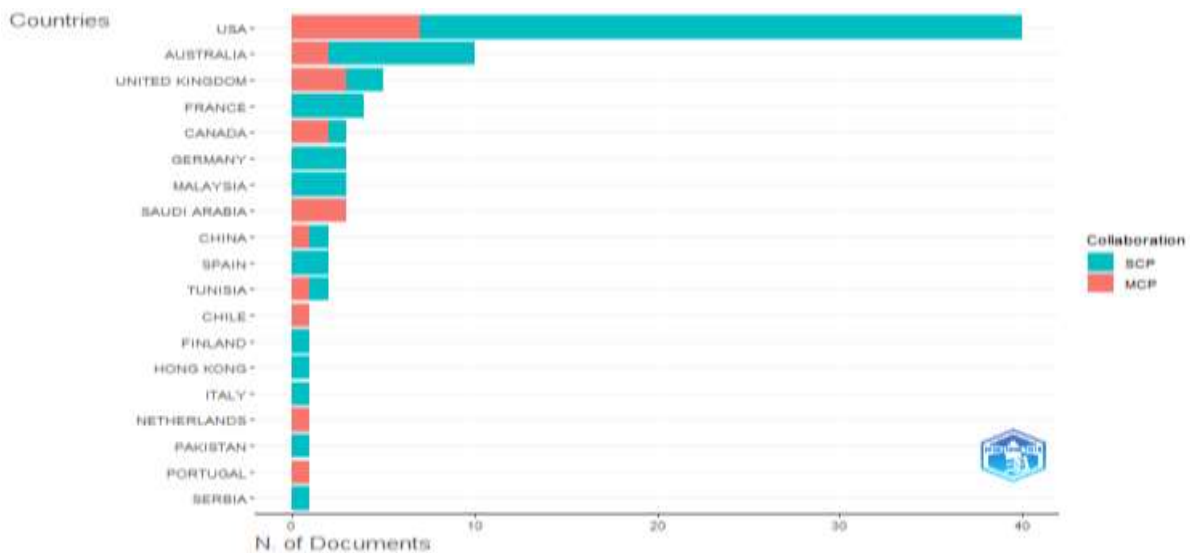
Figure:6 Corresponding author's country. Intra-country (SCP) and inter-country (MCP) collaboration (2017-2023)

3.7 Most Local Cited Sources

Table 4 presents a comprehensive compilation of academic journals and the corresponding count of articles about segment reporting referenced inside each journal. This study provides valuable insights into the prominent publications within the area, highlighting the Journal of Accounting Research as the most influential with 520 cited articles, closely followed by The Accounting Review with 403. These statistics underscore the significance of these scholarly journals in segment reporting research while also providing insights into other noteworthy publications in this academic domain, like the Journal of Accounting and Economics, Accounting Horizons, and Journal of Financial Economics, among others.

Sources	Articles
JOURNAL OF ACCOUNTING RESEARCH	520
THE ACCOUNTING REVIEW	403
JOURNAL OF ACCOUNTING AND ECONOMICS	289
ACCOUNTING HORIZONS	154
JOURNAL OF FINANCIAL ECONOMICS	122
JOURNAL OF INTERNATIONAL ACCOUNTING	108
CONTEMPORARY ACCOUNTING RESEARCH	85
REVIEW OF ACCOUNTING STUDIES	82
JOURNAL OF BUSINESS FINANCE & ACCOUNTING	81
JOURNAL OF FINANCE	78

Table:4 Most local Cited Sources

3.8 Source Local Impact

The data shown in Table 5 offers significant insights into the local impact of scholarly papers in segment reporting research. The metrics examined in this study include the h-index, g-index, m-index, total citations (TC), number of publications (NP), and the starting year for segment reporting-related publications (PY_start) for each journal. These measures together assess the influence, citation performance, and historical engagement of the journals within the discipline. For instance, the Journal of International Accounting, Auditing, and Taxation has achieved a noteworthy h-index of 9, which signifies a substantial scholarly impact within the academic world. In contrast, the Accounting Review distinguishes itself by having the most significant total amount of citations (431) among journals, which signifies its considerable influence in the field of segment reporting study. Researchers can use this table to differentiate prominent journals and evaluate their significance in accounting research.

Element	h_index	g_index	m_index	TC	NP	PY_start
JOURNAL OF INTERNATIONAL ACCOUNTING, AUDITING AND TAXATION	9	14	0.321	256	14	1996
INTERNATIONAL JOURNAL OF ACCOUNTING	6	8	0.222	192	8	1997
JOURNAL OF BUSINESS FINANCE AND ACCOUNTING	5	6	0.192	125	6	1998
ACCOUNTING HORIZONS	4	6	0.166	255	6	2000
ACCOUNTING REVIEW	4	5	0.210	431	5	2005
JOURNAL OF ACCOUNTING RESEARCH	4	5	0.142	779	5	1996
AUSTRALIAN ACCOUNTING REVIEW	3	3	0.176	45	3	2007
EUROPEAN ACCOUNTING REVIEW	3	3	0.15	263	3	2004
JOURNAL OF ACCOUNTING AND PUBLIC POLICY	3	4	0.075	49	4	1984
JOURNAL OF ACCOUNTING, AUDITING AND FINANCE	3	5	0.166	160	5	2006

Table:5 Source Local Impact

3.9 Annual Citation
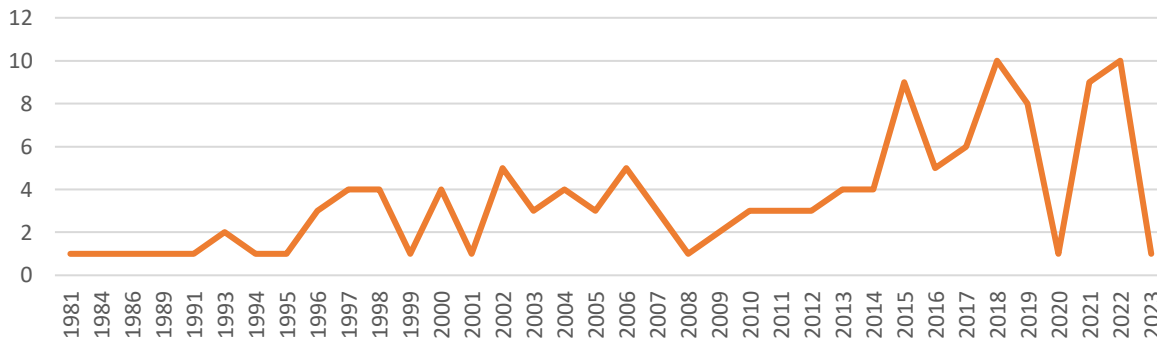
Figure:7 Annual Citation Pattern

The Figure 7 offers a chronological account of yearly citations for works pertaining to segment reporting, illustrating the frequency with which scholarly investigations in this domain have been referenced over the period spanning from 1981 to 2023. Researchers can use it to spot trends, evaluate the effects of particular articles or years, and track periods of rising interest in segment-reporting research. Notably, there has been a noticeable increase in citations between 2018, 2017, 2022, and 2021, which suggests a continued significance and focus on this particular field of research.

4. DISCUSSION & CONCLUSION

The study uncovers various noteworthy patterns in segment reporting **(RQ1)** practices. To begin with, it is evident that there has been a significant rise in the number of published works and citations about sector reporting since the onset of the 21st century, particularly with a marked upsurge observed following the year 2015. This observation indicates an increasing level of interest and acknowledgment of the significance of segment reporting within the field of accounting study. 2018 and 2022 are notable for their high volume of published articles, suggesting a significant surge in research effort during those timeframes. The observed phenomenon can be ascribed to the progressive development of accounting standards; more excellent practice has stimulated greater scrutiny regarding the practices employed in segment reporting.

Numerous writers and scholarly journals have made significant contributions **(RQ2)** to the domain of segment reporting practices. The "Journal of International Accounting, Auditing, and Taxation" is a prominent journal in this field, having published 14 articles demonstrating its substantial influence on the existing body of literature. The "International Journal of Accounting" is highly regarded in the academic community, having published eight articles. Significant emphasis has been devoted to widely referenced studies that examine the influence of accounting standards, such as SFAS No. 131, and competition on the decision-making process of segment reporting. This highlights the importance of regulatory changes and market dynamics in defining practices related to segment reporting Examining nations of corresponding authors (RQ3)

uncovers intriguing trends regarding authorship and collaboration. The United States of America (USA) demonstrates a prominent position regarding the quantity of segment reporting articles. However, it is noteworthy that the USA also displays a comparatively lower ratio of multiple-country perspective (MCP), suggesting a considerable emphasis on domestic segment reporting practices. On the other hand, it is noteworthy that nations such as Australia and the United Kingdom demonstrate a heightened inclination for cross-country analysis, as evidenced by their comparatively larger MCP ratios. Canada has a noteworthy MCP ratio of 0.666, indicating a significant focus on examining segment reporting across various countries within Canadian studies.

However, it is crucial to recognize specific constraints inherent in this study. This study primarily utilizes data obtained from the Scopus database, which, although comprehensive, may not contain all pertinent articles on the subject. In comclusion,The bibliometric analysis proposed in this study provides a significant resource for scholars, policymakers, and practitioners seeking insights regarding the progression of segment reporting research.

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