Twelve Decades of Public Sector Accounting Research: A Bibliometric Review

Ahmad Tajudin[1]♣*, Norziaton Ismail Khan[2] and Aida Hazlin Ismail[2]
[1]Accountant General Department of Malaysia, Putrajaya, Malaysia
[2]Faculty of Accountancy, Universiti Teknologi MARA Selangor,
Kampus Puncak Alam, Selangor, Malaysia

ABSTRACT

Public sector accounting is crucial in establishing accountability, transparency, and integrity in the Government as it serves as a tool for analysing financial and operational performance. However, the publication on public sector accounting has grown less attractive since they target a narrow audience and are only available in niche accounting domains. Hence, this paper reports the current scientific literature on public sector accounting through a bibliometric analysis by examining general publication trends and the knowledge structure of this field. A bibliometric analysis was performed on 594 published items of literature concerning public sector accounting or government accounting in the Scopus database on 20th February 2022. The data extracted were analysed using the R package "Bibliometrix", Microsoft Excel 2021, Harzing's Publish and Perish, and VOS-viewer. Findings indicated that Western scholars paid attention to public sector accounting research during its formative years, commencing from 1906. Most of the research was done after 2000, and six themes were generated for the conceptual structure in public sector accounting that is "Public Sector", "Public Sector Accounting", "Accounting", "Government Accounting", "Accounting Change" and "Performance". Unfortunately, there were lesser reports on collaborations among researchers from different regions, which implied that there could be fewer social-exchange perspectives across institutions and nations.

Keywords: Public Sector Accounting, Government Accounting, Bibliometric Analysis, R-Tools, VOS-Viewer

♣ Corresponding Author: Ahmad Tajudin, Accountant General Department of Malaysia, Level 1-8, Ministry of Finance Complex, No. 1, Persiaran Perdana, Precinct 2, 62594 Putrajaya, Malaysia; Email: ahmadtj.phd@gmail.com; Tel: +6017 349 094

INTRODUCTION

Public sector accounting (PSA) or government accounting research has been conducted by numerous researchers worldwide. PSA is crucial in promoting accountability, transparency, and public confidence (Heiling, 2020). The accounting field is vital to the public sector because it measures a government's revenue and expenses. Additionally, it is essential for budgeting, planning, and forecasting, all of which aid in decision-making (Rossi, 2016). While the primary objective of the public sector is not to generate profit, yet, it is critical to understand how a nation is performing financially.

Since the 1990s, PSA research has relied heavily on the New Public Management (NPM) approach which has limited theoretical application (Vivian & Maroun, 2018; Hyndman & Lapsley, 2016; Steccolini, 2019). The emergence of the NPM approach has incentivised the public sector's ongoing reforms, including the introduction of the private sector management model, which granted accounting a prominent role (Hood, 1995). For example, NPM ideology has introduced accrual accounting since it increases the efficiency and transparency of financial management.

Numerous studies by prominent researchers such as Chan (2003) and Lapsley (1988) have contributed to the literature by concentrating on governmental accounting theory, empirical research, as well as policy development in the area of financial accounting and accountability. Others including Goddard (2010), Van Helden (2005), and Van Helden and Argento (2020) emphasized the management aspect of accounting including budgeting, costing, performance evaluation and analysis.

Due to the specific contents of its theories, themes, methodologies (Van Helden & Argento, 2020), and limited review of certain aspects of PSA (Bakar & Saleh, 2011), the publication in public sector accounting journals has becomes less appealing (Abdul-rahaman et al., 1997) or even have to be discontinued. Furthermore, the scenario has been occurring because the methods commonly employed in publications related to PSA is conceptual and commentary rather than empirical (Santis et al., 2018). Unlike empirical research, a conceptual paper is harder to get published (Casanave & Li, 2015). This results in a risk that PSA research is indeed a

niche within the accounting domains and will not appear in other relevant important publications such as accounting education and accounting history (Sangster, 2015). This scenario complicates the process of publishing and locating PSA research data for use as a source of reference by readers including researchers. Hence, it becomes interesting to investigate the growing body of literature on publication of   PSA.

This paper performed a bibliometric analysis of the present scientific literature on PSA and examined publishing patterns and knowledge structure in the field. The bibliometric analysis provides the ability to establish a systematic, and transparent review procedure based on statistical assessments of research activities and researcher contributions (Aria & Cuccurullo, 2017). Therefore, this form of review is dependable and objective than conventional techniques. This work attempted to address the following research questions:

1.   What are the trends of the current state of public sector accounting publications?

2.   What is the general description of the conceptual and social structure of public sector accounting publications?

The above research question was answered through two research objectives i.e., to examine the trends of the current state of public sector accounting publications; and to investigate the general description of the conceptual and social structure of public sector accounting publications.

This research is vital to gain a deeper understanding of the PSA phenomenon in terms of its worldwide reach and collaborations. Most recent information was analysed to provide sound recommendations for future studies on the issues related to PSA.

LITERATURE REVIEW

Public Sector Accounting

Accounting is a key element in monitoring an organization's financial resources and financial position (Biot-Paquerot et al., 2006) by providing financial and non-financial information for planning, decision-making, and monitoring through its financial statements. The American Accounting Association defines accounting as a process of identifying, measuring, and communicating economic information to permit informed judgments and decisions by users. Accounting can be focused on either internal transactions within an entity (financial accounting), or internal transactions and operations (management accounting) (Kaplan, 1984; Taipaleenmäki & Ikäheimo, 2013)as opposed to many European countries, management accounting is organised as a profession and most management accountants hold a professional designation. This chapter explores how the management accounting profession successfully established jurisdiction over management accounting practices. We suggest that the standardisation and enhancement of the requirements for education, the support of research on management accounting techniques, and the development of Management Accounting Guidelines (MAGs. Thus, accounting can be considered a crucial tool in financial reporting and resource management within an organisation, assisting all stakeholders in obtaining the information necessary to make decisions.

The function of PSA has evolved in response to information requirements by stakeholders. Accounting has been viewed as an essential part of the government's financial control, which evolves following the evolution of democracy (Broadbent & Guthrie, 1992). Furthermore, the NPM ideology has shifted the emphasis from focusing on outputs to outcomes. NPM has moved from traditional accounting by introducing a strategic management model, which focuses on budget allocation to resource efficiency through managing cost and revenues as well as assets and liabilities (Hood, 1995). This strategy prompted the government to introduce an accounting basis that promotes transparency of financial information and intergenerational equity known as accrual accounting.

Numerous countries, especially the developed ones, have moved to implementing accrual accounting (Frintrup et al., 2020; Polzer et al., 2022; Wang & Miraj, 2018)significant New Public Management (NPM. The transition from cash to accrual accounting was a major shift affecting the financial reporting procedures of governments in several countries. The implementation of accrual accounting has resulted in a more comprehensive perspective of the economic situation than that provided by cash basis accounting, which is a key principle of accounting reforms (IMF, 2018). This is due to the ability of accrual accountings to convey pertinent information relating to the state of a country's financial position, thus allowing the government to make future plans and decisions.

Bibliometric Analysis

Bibliometric analysis is a subset of scientometrics that examines scientific activity in a particular field of study using mathematical and statistical approaches (Glänzel, 2014). Bibliometrics gives an overview of an area of study that is classed according to articles, authors, and journals (Mathankar, 2018). The bibliometrics technique is suitable for any discipline because it can process vast amounts of data and aids in minimizing author biases of the quantitative approach.

The analysis typically consists of two components: performance analysis, which focuses on annual publications; and scientific mapping, which entails mapping a field's intellectual structure (Borner et al., 2003). The performance analysis quantifies the impact of publication citations generated from the various variables participating in a research topic. Countries, institutions, departments, and, researchers can all be considered variables with the most frequently used indicators appearing to be several number of publications and citations (Aksnes et al., 2019). While the quantity of publications is connected to an author's output, the quantity of citations is related to the author's impact on the scientific community (Abramo & D'Angelo, 2015; Aksnes et al., 2019). In contrast, science mapping is a technique for visualising the structure and dynamics of scientific fields (Cobo et al., 2011)we use innovative full-text citation analysis along with supervised topic modeling and network-analysis algorithms to enhance classical bibliometric analysis and publication/author/ venue ranking. By utilizing citation contexts extracted from a large number

of full-text publications, each citation or publication is represented by a probability distribution over a set of predefined topics, where each topic is labeled by an author-contributed keyword. We then used publication/citation topic distribution to generate a citation graph with vertex prior and edge transitioning probability distributions. The publication importance score for each given topic is calculated by PageRank with edge and vertex prior distributions. To evaluate this work, we sampled 104 topics (labeled with keywords. This technique visually depicts the relationships between fields, disciplines, specialities, authors and documents.

Gaps in Public Sector Accounting Studies Using Bibliometric Analysis

Bibliometric research often consists of publications that provide analysis from multiple perspectives. As demonstrated in Table 1, several studies revealed a considerable, cumulative rise in PSA research up to the year 2020. Unfortunately, none of these studies assessed comprehensively the publishing trend and knowledge structure associated with PSA research using bibliometric analysis as most of it focused on accrual accounting.

Table 1: Previous Publications on the Bibliometric Study of Public Sector Accounting

Author	Data source	Source of Data	Year	Bibliometric indicator
Hendri et al. (2020)	Google Scholar	(Accrual accounting AND public sector) in the Title	0 to 2020	1. Accrual accounting research articles in the public sector that are included in the SCImago version of the Q4-Q1 journal 2. The distribution of accrual accounting articles in the public sector by quartile, year, the publisher and the journal name. 3. The distribution of citation productivity of accrual accounting topic articles in the public sector 4. The collaboration among researchers based on co-authorship 5. The trend of accrual accounting research in the public sector based on co-words

Bruns et al. (2020)	Web of Science (WoS)	Contents of any paper which cited either of Hood's seminal papers (1991, 1995)	1991 to 2018	1. Top-15 profile by citation frequency 2. Public administration source journal articles collected by year 3. Most cited publications 4. Change in citation frequency: Comparing the state of nascent (Early: 1991–2007) and intermediate research (Late: 2008-2018) 5. Co-Citation mapping
Gamayuni's (2020)	Scopus	(Government accrual accounting) in the titles/ abstracts	2010 to 2019	1. Scope of research country presence of the three principal keywords. 2. Co-occurrence network analysis

METHODOLOGY

Data Source and Search Strategy

This study was conducted by using data from the Scopus database because it is one of the major academic databases, which is about 60% larger than the Web of Science (Comerio & Strozzi, 2019) and provides a superior article selection (Salisbury, 2009). Additionally, the Scopus database's citations correspond more closely with expert opinion than those in Google Scholar or Web of Science (Li et al., 2010), and coverage of publications from developing countries more than Web of Science (Moya-Anegón et al., 2007). Thus, the Scopus database could give more comprehensive and high-quality data for this study.

Data extracted on February 20, 2022 by using the Boolean words of ("public sector accounting") OR ("government accounting") OR ("public sector" AND "accounting") OR ("government" AND "accounting") to search for relevant articles published on Public Sector Accounting. The title of articles was used to screen publications because these are the first elements readers will observe (Jamali & Nikzad, 2011) and ensure only articles related to PSA were extracted.

No date was set or limiting the start of the search to enable the search engine to find the earliest publications in the literature on the selected topic. The study included journal articles and conference papers while excluding the rest. This study adopted the search strategy from Zakaria et al. (2021). As shown in Figure 1, the database yielded 594 documents on PSA.
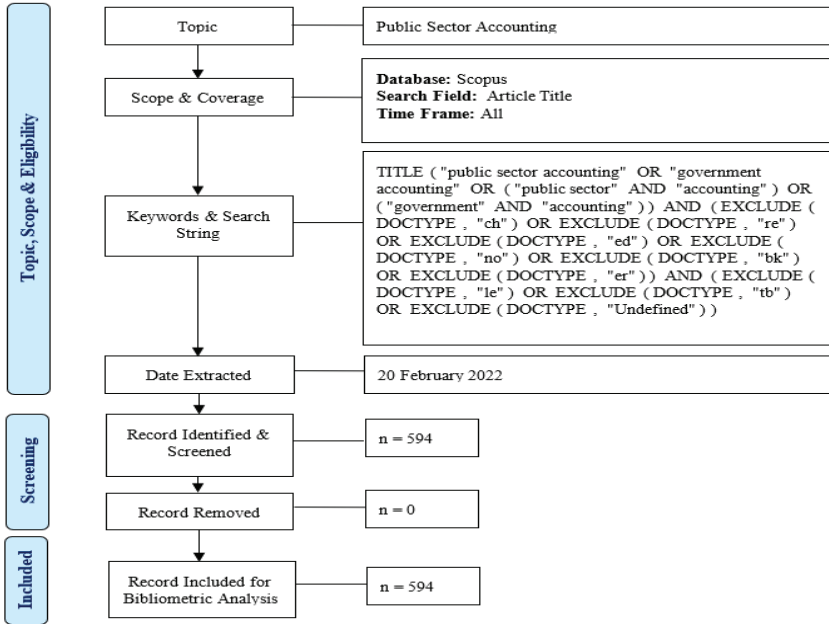
Topic, Scope & Eligibility	Topic	Public Sector Accounting
	Scope & Coverage	**Database:** Scopus **Search Field:** Article Title **Time Frame:** All
	Keywords & Search String	TITLE ("public sector accounting" OR "government accounting" OR ("public sector" AND "accounting") OR ("government" AND "accounting")) AND (EXCLUDE (DOCTYPE , "ch") OR EXCLUDE (DOCTYPE , "re") OR EXCLUDE (DOCTYPE , "ed") OR EXCLUDE (DOCTYPE , "no") OR EXCLUDE (DOCTYPE , "bk") OR EXCLUDE (DOCTYPE , "er")) AND (EXCLUDE (DOCTYPE , "le") OR EXCLUDE (DOCTYPE , "tb") OR EXCLUDE (DOCTYPE , "Undefined"))
	Date Extracted	20 February 2022
Screening	Record Identified & Screened	n = 594
	Record Removed	n = 0
Included	Record Included for Bibliometric Analysis	n = 594

Figure 1: PSA research flow diagram
(Source: Zakaria et al. 2021)

Analysis of Retrieved Literature

The bibliometrix R-package and various software products, such as Microsoft Excel 2021, Harzing's Publish and Perish, and VOS-viewer, were used to perform a comprehensive analysis, draw graphs, and display pattern analysis. The bibliometrix R package implements a strategy for quantitative research in bibliometrics and scientometrics. It was written with the R programming language which is open source free software (Linnenluecke et al., 2020). Apart from that, R's robust statistical algorithm is user-friendly and capable of integrating visual data which makes it one of the main reasons to select R over alternative scientific computation languages for scientific computing (Gentleman, 2008). Based on the R philosophy, detailed information on the package is available elsewhere.

This study also employed Microsoft Excel to determine the frequency and percentages of publications, as well as to create charts and graphs. The citation metrics were calculated using Harzing's Publish and Perish, while

VOS-viewer was used to build and visualise the bibliometric networks and synthesise the patterns of information output in the specified format.

RESULTS AND DISCUSSION

The Publication Trends and Description of PSA

The analysis of the current state of publication in PSA were conducted by examining on the trend and description of (a) the publication trend and citation structure, (b) Key authors and their citation structure, (c) Most Active Source Titles, and (d) Most productive countries, institutions and frequently used keywords.

The publication trend and citation structure of PSA

Over the last 120 years, 594 Scopus-indexed papers have been published, growing at a 4.25 per cent annual rate, as illustrated in Figure 2. This trend reflects an ever-growing corpus of knowledge concerning PSA. The first document was published in 1906 and zilch until 1947 when another report was published. Research in this field has been progressing since the late 1970s, but it picked up momentum in the 2010s with 17 publications, 66% being released between 2010 and 2020, which totalled 394 publications, thus indicating the evolution of information in this niche.
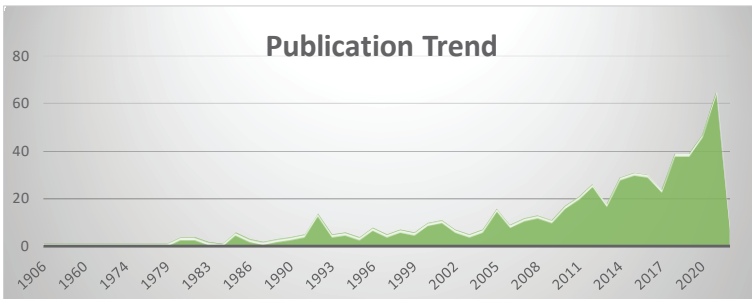

Figure 2: Growth of Publications

The multiple citation thresholds were constructed to understand the impact of the PSA publication citation structure. Based on the top five publications in Table 2, while the highest number of documents were

released in 2021, the documents published in 2015 were cited most with an h-index 10.

Table 2: Top Five Publications by Year

R	Year	TP	%	CP	TC	*C/CP*	*MTCPA*	*MTCPY*	*CY*	*h*	*g*
1	2021	65	10.94%	32	93	2.91	1.42	1.42	1	5	6
2	2020	47	7.91%	31	141	4.55	3.00	1.50	2	7	9
3	2019	39	6.57%	29	277	9.55	7.08	2.36	3	9	15
4	2018	39	6.57%	30	226	7.53	5.74	1.44	4	10	13
5	2015	31	5.22%	26	368	14.15	11.84	1.69	7	10	18

Notes: TP=Total Publications; CP=Cited publications; TC=Total citations; C/CP=average citations per cited publication; MTCPA= mean total citations per article; MTCPY= mean total citations per year; CY= Count Year; h=h-index; and g=g-index

Key authors in PSA and the citation structure

Table 3 summarises the top six productive authors' (having produced at least eight documents in PSA), publication and citation index as well as affiliations. The most productive author, according to the ranking, is Adhikari, P. from the Essex Business School in the United Kingdom. He produced 11 PSA documents and has 145 citations with an h index of 7. As opposed to Lapsley, I. who has a 592-citation score but only produced 8 publications. Most of the authors who produced PSA publication were from UK and authors from the Essex Business School were the top two in published PSA.

Table 3: Top Six Productive Authors in PSA and their Citation Structure

R	AU	AFFL	CTR	TC	NP	PY	h	g
1	Adhikari P	Essex Business School	United Kingdom	145	11	2009	7	11
2	Steccolini I	Essex Business School	United Kingdom	233	10	2006	7	10
3	Hyndman N	Queen's Management School	United Kingdom	274	9	2006	7	9
4	Brusca I	Universidad de Zaragoza	Spain	180	8	2010	7	8
5	Cohen S	Athens University of Economics and Business	Greece	158	8	2013	6	8
6	Lapsley I	The University of Edinburgh	United Kingdom	592	8	1991	7	8

Notes: R=Ranking; AU=Authors Name; AFFL=Affiliation; CTR=Countries; TC=Total Citations=No of Publication PY=Publication Year; h=h-index; and g=g-index.

Most active source titles

In terms of journal category, Financial Accountability and Management, and Public Money and Management published 54 reports on PSA each, making them the journals with the highest number of publications on PSA. However, the highest-quality and most-respected sources, SJR 2020

and SNIP 2020 were published by Critical Perspectives on Accounting with a score of 2.042. Table 4 contains information on the most active source titles in PSA research.

Table 4: List of Most Active Source Titles

R	JN	TP	TC	C/P	PR	CS	SJR	SNIP
1	Financial Accountability and Management	54	1,303	24.1	Wiley-Blackwell	2.8	0.661	1.633
2	Public Money and Management	54	1,178	21.8	Taylor & Francis	2.3	0.492	1.006
3	Accounting Auditing and Accountability Journal	26	747	28.7	Wiley-Blackwell	6.0	1.741	1.888
4	Critical Perspectives on Accounting	22	679	30.9	Elsevier	6.6	2.042	2.261
5	Accounting History	18	546	30.3	SAGE	2.0	0.596	0.781

Notes: R=Ranking; JN=Journal Name; TP=Total Publication; TC=Total Citation; C/P=Citation per paper; PR=Publisher; CS= Cite score; SJR= SCImago Journal Rank; SNIP= Source Normalised Impact per Paper

Most productive institutions, countries and most frequent keywords

Table 5 ranks the most productive institutions and countries based on topics of publication and citations obtained and rates the 15 most often used keywords. The University of Essex produced 15 publications followed by the Athens University of Economics and Business, the University of Minho (12 publications each), were the top three institutions listed.

In terms of country, the United Kingdom led the top 20 countries, with 55 publications and 1,799 citations; followed by Australia (53 publications), and other countries that are listed in Table 5. PSA attracted a large number of United Kingdom, Australian and the United States academics. There were also several Asian countries such as Indonesia and Malaysia, which have been ranked among the top 15 countries that have active research in this field. Additionally, Table 5 includes the most commonly used authors' keywords. The keywords listed include public-sector, public-sector accounting, accrual accounting, IPSAS, local government, accountability, new public management and institutional theory.

**Table 5: List of Most Productive Institutions,
Countries and Most Frequent Keywords**

R	I	TP	%	CY	TP	TC	KW	F
1	University of Essex	15	2.86	United Kingdom	55	1,799	Public Sector	70
2	Athens University of Economics and Business	12	2.36	Australia	53	1,140	Public Sector Accounting	63
3	University of Minho	12	2.19	USA	31	485	Accrual Accounting	54
4	University of Zaragoza	11	2.02	Italy	23	372	Accounting	44
5	Australian National University	9	1.85	Indonesia	20	160	IPSAS	34
6	University of Birmingham	9	1.85	Spain	15	452	Local Government	28
7	University of Groningen	9	1.85	France	14	162	Accountability	24
8	Islamic Azad University	8	1.68	Malaysia	13	108	Government Accounting	19
9	RMIT University	8	1.68	Canada	10	142	New Public Management	17
10	University of Edinburgh	8	1.68	China	10	226	Government	15
11	Universiti Teknologi Mara	7	1.68	Portugal	9	160	Institutional Theory	13
12	University Of London	7	1.52	Germany	6	59	Accounting Change	11
13	University Of Salerno	7	1.52	Netherlands	6	205	Central Government	11
14	University Of Sydney	7	1.52	New Zealand	6	80	Governmental Accounting	11
15	Victoria University of Wellington	7	1.52	Sweden	6	128	EPSAS	10

Notes: R=Ranking; I= institution; TP=Total Publication; %=Percentage; CY= Countries; TC=Total Citation; KW= Keywords; F=Frequencies

The General Description of The Conceptual and Social Structure of Public Sector Accounting Publications

The general description of the Conceptual and social structure of PSA research were examined using (a) the conceptual structure of the PSA publication corpus and (b) the social structure of PSA publications.

The Conceptual structure of PSA publication corpus

An analysis of keyword patterns and how author's coin their keywords is depicted in a strategic diagram of the conceptual structure of PSA labelled as Figure 3. The R bibliometrix package was used to construct the concept that illustrates multiple themes derived from 56 keywords and quantified using centrality and density.
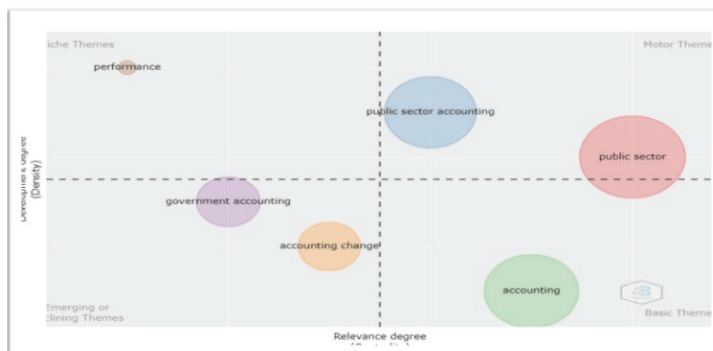

Figure 3: Strategic Diagram of the Conceptual Structure of PSA

The four quadrants of the Strategic diagram of the conceptual structure of PSA (Figure 3), contained six clusters. The upper right quadrant presents motor themes, the lower right presents basic themes, the lower left quadrant presents emerging or declining themes and the upper left quadrant highlights niche themes. The Public Sector and Public Sector Accounting clusters are part of the motor theme quadrant. In this field, these two clusters appeared to be particularly important with a higher density and strong correlation, indicating that these clusters were quite similar in terms of keywords frequently used.

The Public Sector cluster was the largest in terms of size, and it included keywords such as Public Sector, Accrual Accounting, Accountability, New Public Management, Corruption, IPSAS, Transparency and Forensic Accounting. These clusters, in addition to being part of the motor quadrant, were also part of the fundamental quadrant. In other words, these clusters were also significant in the corpus of PSA research, and research on this topic had explored basic issues on the concept and measurement of PSA in various contexts. The second-largest cluster namely public sector accounting, categorised in the motor quadrant contained keywords such as

Public Sector Accounting, IPSAS, Institutional Theory, EPSAS, Financial Reporting, and Accounting, which focused on the analysis of topics of government financial accounting and management.

The third larger cluster appeared in the basic theme quadrant i.e., Accounting. Keywords included Accounting, Local Government, Government, Public Sector Reform, e-government, and financial reporting quality. This cluster examined and discussed issues pertaining to accounting practice, accounting system, local government accounting system, and public sector financial reporting.

Government accounting fell under the emerging theme quadrant, comprising keywords such as government accounting, accounting history, accrual basis, and public accountability. Accounting Change also emerged as an Emerging Theme with terms such as central government, management accounting, emerging economies, and NPM appearing. The placement of this cluster insinuated that it may have been the catalyst for new developments in PSA research which may continue to evolve in the future.

A cluster named performance was located in the niche quadrants. The size of the cluster showed the number of articles and includes publications on performance metrics through PSA research. The keywords in this cluster included accountant and performance.

The social structure of PSA publications

Collaboration analysis of authors, which appeared in PSA research papers was used to address the second research question (2c). The mapping was created with data from authors who had at least documented two of their findings. There were 164 authors, and this analysis was based on the network's maximum collaboration strength of 72 member authors with 12 clusters in this network as shown in Figure 4. These findings implied that there were several collaboration networks in PSA studies that have attracted academics from a variety of institutions and countries.
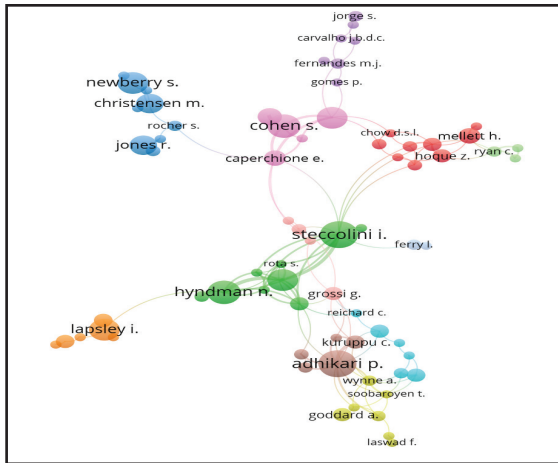
Figure 4: Collaboration Network Among Authors In PSA

DISCUSSION

This bibliometric study reviewed literature in the field of PSA. Bibliometric analysis is becoming more popular for uncovering research trends (Ahmi & Mohd Nasir, 2019). According to Gu (2004), data from the bibliometric analysis has an advantage in assessing domains within research successfully and at the same time facilitates research funding agencies to make sound decisions in fund management. This study analysed a gamut of papers on Public Sector Accounting published in the Scopus database and yielded over 590 reports through relevant keywords. The analysis was segregated into two parts to address the research questions.

The General Description and Publication Trends in PSA

PSA research work were ranked in terms of the most prominent authors, citations, publishing institutes and countries as well as keywords used in the publications. The analysis of the publication pattern enabled the researchers to assess the evolution of the topic (Ahmi & Mohamad, 2019). Documents on PSA first appeared in early 1906 and were written by Chase, Harvey S., from United State. The title of the document was Notes on Municipal Government: Municipal Accounting published in The Annals of The American Academy of Political and Social Science. The first

ten documents on PSA were indexed in the Scopus database, and they were produced by researchers from the United States, the United Kingdom, and Canada. This implies that Western researchers began documenting their research work and finding in this field rather early on. According to Pollitt and Bouckaert (2000), the United Kingdom has long set precedence in government reforms for decades compared to the rest of the world.

The analysis in this study demonstrated that the rise of PSA research publications has decelerated at the initial stages, with just 10 documents published in 73 years (1906-1979) since PSA was introduced. Despite the importance of government accounting, very little attention was dedicated to this issue in most countries at that time (Premchand, 1975), and the subject has drawn relatively little interest among practitioners and academics (Normanton, 1966; Pallot, 1992). As interest in PSA has grown among academics ever since the trend consistently improved from the 1980s to the 1990s, (Broadbent & Guthrie, 1992) with an average of four documents generated annually. Considerably, a shift occurred in the year 2000, averaging 58 papers published every year from 2000 to 2021. In general, the publications trend in a journal rises with time for two primary reasons that is greater interest among researchers in a given topic and, advancements in digital information technology infrastructure, which makes it easier to access, submit, and distribute reports (Martínez-López et al., 2018).

A study of prominent writers was also conducted to determine an author's accomplishments in terms of publications and citations as reported in the Scopus database (Merigó et al., 2018). While Adhikari, P. had a greater number of publications, other writers such as Lapsley, I., and Newberry, S., had more cited papers. Citation counts, on the other hand, are ineffective for comparing top authors since older papers are more often referenced (Thelwall, 2020). For instance, Adhikari, P. only began publishing his work in 2009, but Lapsley, I., began publishing in 1991.

The citation count permits tracking the frequency with which publications are mentioned in a publication, showing the impact of research works (Gutiérrez-Salcedo et al., 2018). The most cited papers quantify the effect of a publication by citation counts, which enables one to determine how frequently a publication is cited (Aksnes et al., 2019; Baas et al., 2020). Evaluating documents and citation data enable to identifies the publications

that have a significant impact on the field of study and serve as the primary reference for the researcher.

The majority of the most referenced papers on PSA were published in journals with a higher index. The high-index journal is a more dependable and high-quality source since it has undergone a rigorous peer-review process before publication (Palmatier et al., 2018). The result of this study on top journals is consistent with Goddard, (2010). For instance, in this study, the documents titles Public Sector to Public Services: 20 Years Of "Contextual" Accounting Research and Changes in The Public Sector: A Review of Recent "Alternative" Accounting Research was published in Accounting, Auditing & Accountability Journal. While Debating the Impact of Accrual Accounting and Reporting in the Public Sector was published in Financial Accounting & Management. The Cite-Score for both Journals was 6 and 2.8, respectively.

The General Description of The Conceptual and Social Structure of Public Sector Accounting Publications

Exploring different techniques is necessary to assess and determine the knowledge structure of PSA research in order to conceptualise this study. These techniques included Pathfinder network scaling (Chen & Paul, 2001) and information visualization using social network analysis (Ennett et al., 2006), all of which provided the ability to interact with data and display it from various perspectives. A specific domain's knowledge structure can only be developed via the use of these methods (Aria & Cuccurullo, 2017).

The conceptual structure was determined via co-word analysis and resulted in the formation of a strategic diagram of the authors' keywords. Co-word analysis sheds light on various themes or concepts within a subject of knowledge (Van Eck & Waltman, 2010). Due to the specialised and distinctive nature of PSA research, the strategy diagram contains just six major significant issues. The themes are regarded as the primary topic of investigation in the PSA study. Among the six topics, "Public Sector Accounting" and "Public Sector" were popular and were considered "motor themes" that have been dealt with systematically and over a long period by previous researchers (Giannakos et al., 2020). Interestingly, the themes namely "Government accounting " and Accounting Changes" were located

in the cluster peripheral and were considered undeveloped, which predicted will be explored by the researcher in the future (Zamani et al., 2022). These themes are essential in PSA because many nations are attempting to adopt accounting reforms (Tran et al., 2021) to increase the transparency and accountability of the public sector.

Finally, the examination of the social structure of PSA publications indicated a lack of collaboration between academics from Europe and Asia in PSA research, potentially as a result of nations' differing accounting standards and application as a result of various institutional pressures (Timoshenko & Adhikari, 2010). Collaboration is a necessary capability for exchanging information and combining and strengthening skills, which expands collaboration. Additionally, it enables researchers to enhance knowledge and benefits practices externally.

CONCLUSION

This study examined overall trends in publication as well as the knowledge structure within PSA. A comprehensive review of articles relating to PSA research that were published between 1906 and 2022 was feasible by analysing the bibliometrics. According to the findings, the early form of PSA was undertaken by Western scholars which perpetuates to this day. While most of the research was reported to have been done year 2000 onwards, they mainly focused on selected themes that encompassed accrual accounting and reforms, and public sector performance management. Six themes were identified to conceptualise the framework of this study.

There has been minimal collaboration on PSA research amongst researchers from different countries, indicating a lack of perspectives on this topic from diverse practices, cultural, and institutional backgrounds, notably between researchers from Europe and Asia. This research, too, has certain limitations. Data analysis was limited to the Scopus database. Second, keywords that were used to search for finding strings were derived from document titles. Expanding the search string by including abstracts and keywords would have boosted the volume and frequency of valuable information. Third, it is possible that authors or institutions used alternative spellings or alias in the Scopus database, resulting in erroneous author affiliations or productivity figures.

Notwithstanding, this study adds sound information to the field of PSA research in terms of publishing trends as well as a knowledge structure. Each analysis in this study indicated emerging knowledge due to the field's expansion and collaborative status. This study expanded prior findings and used bibliometric tools to analyse the data. Several intriguing discoveries illustrate the growing relevance of PSA and its distribution, as well as the necessity for further collaborative research. Data from other than Scopus databases might be advantageous to yield a comprehensive finding of publishing trends and knowledge structure within public sector accounting research in future studies.

REFERENCES

Abdul-rahaman, A. S., Gallhofer, S., Haslam, J., & Lawrence, S. (1997). Public sector accounting and financial management in developing countries: a critical assessment of the literature. *Asian Review of Accounting, 5*(2), 38–65.

Abramo, G., & D'Angelo, C. A. (2015). The relationship between the number of authors of a publication, its citations and the impact factor of the publishing journal: Evidence from Italy. *Journal of Informetrics*, *9*(4), 746–761. https://doi.org/10.1016/j.joi.2015.07.003

Ahmi, A., & Mohamad, R. (2019). Bibliometric analysis of global scientific literature on web accessibility. *International Journal of Recent Technology and Engineering*, *7*(6), 250–258.

Ahmi, A., & Mohd Nasir, M. H. (2019). Examining the trend of the research on extensible business reporting language (XBRL): A bibliometric review. *International Journal of Innovation, Creativity and Change*, *5*(2), 1145-1167.

Aksnes, D. W., Langfeldt, L., & Wouters, P. (2019). *Citations, citation indicators, and research quality: An overview of basic concepts and theories.* Sage Open.

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, *11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative Science Studies*, *1*(1), 377–386. https://doi.org/10.1162/qss_a_00019

Bakar, N. B. A., & Saleh, Z. (2011). Public sector accounting research in Malaysia: Identifying gaps and opportunities. Journal of Research and Practice in Public Sector Accounting and Management, 1, 23-42.

Biot-Paquerot, G., Rossignol, J.-L., & La Rochelle, G. S. de C. (2006). Performance management in the public sector: Development and implementation of process-oriented performance measurement system in French universities. *In European Accounting Association Conference, Dublin, Ireland*.

Borner, K., Chen, C., & Boyack, K. W. (2003). Visualizing knowledge domains. *Annual Review of Information Science and Technology,37(1),*179-255.

Broadbent, J., & Guthrie, J. (1992). Changes in the Public Sector: A Review of Recent "Alternative" Accounting Research. *Accounting, Auditing & Accountability Journal*, *5*(2), 3–31.

Bruns, H. J., Christensen, M., & Pilkington, A. (2020). Intellectual heritages of post-1990 public sector accounting research: an exploration. *Accounting, Auditing & Accountability Journal* 33 (8).

Casanave, C. P., & Li, Y. (2015). Novices' struggles with conceptual and theoretical framing in writing dissertations and papers for publication. *Publications*, *3*(2), 104–119.

Chan, J. L. (2003). Government accounting: an assessment of theory, purposes and standards. *Public Money and Management*, *23*(1), 13–20. https://doi.org/10.1111/1467-9302.00336

Chen, C., & Paul, R. J. (2001). Visualizing a knowledge domain's intellectual structure. *Computer*, 34(3), 65-71.

Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: Review, analysis, and cooperative study AmongTools. *Journal of the American Society for Information Science and Technology*, 62(7), 1382-1402. https://doi.org/10.1002/asi

Comerio, N., & Strozzi, F. (2019). Tourism and its economic impact: A literature review using bibliometric tools. *Tourism Economics*, *25*(1), 109–131.

Ennett, S. T., Bauman, K. E., Hussong, A., Foshee, V. A., Cai, L., & Durant, R. H. (2006). The peer context ofadolescent substance use : Findings from social network analysis. *Journal of research on adolescence* 16(2), 159-186.

Frintrup, M., Schmidthuber, L., & Hilgers, D. (2020). Towards accounting harmonization in Europe: a multinational survey among budget experts. *International Review of Administrative Sciences*.

Gamayuni's, R. R. (2020). Accrual accounting at government: a Bibliometric Study.pdf. In T. S. and D. A. Darmawan Napitupulu (Ed.), *International Conference of Economics, Business & Entrepreneurship , ICEBE 2020, 1st October 2020, Tangerang, Indonesia* (pp. 124–128).

Gentleman, R. (2008). *R programming for bioinformatics*. CRC Press Taylor & Francis Group.

Giannakos, M., Papamitsiou, Z., Markopoulos, P., Read, J., & Hourcade, J. P. (2020). Mapping child–computer interaction research through co-word analysis. *International Journal of Child-Computer Interaction*, *23–24*(February), 100165. https://doi.org/10.1016/j.ijcci.2020.100165

Glänzel, W. (2014). *Bibliometrics as a research field : a course on theory and application of bibliometric indicators. 2003. Course Handouts. Acesso em, 20(10)*.

Goddard, A. (2010). Contemporary public sector accounting research - An international comparison of journal papers. The *British Accounting Review*, *42*(2), 75–87.

Gu, Y. (2004). Global knowledge management research: A bibliometric analysis. *Scientometrics*, *61*(2), 171–190. https://doi.org/10.1023/B:SCIE.0000041647.01086.f4

Gutiérrez-Salcedo, M., Martínez, M. Á., Moral-Munoz, J. A., Herrera-Viedma, E., & Cobo, M. J. (2018). Some bibliometric procedures for analyzing and evaluating research fields. *Applied Intelligence*, *48*(5), 1275–1287. https://doi.org/10.1007/s10489-017-1105-y

Heiling, J. (2020). Public Sector Accounting : A Discipline in its Own Right. *International Federation of Accountants*, *December*, 6–6.

Hendri, N., Dewi, F. G., Nurdiono, N., & Gamayuni, R. R. (2020). Bibliometric study concerning accrual accounting in the public sector of reputable international journals. *Solid State Technology*, 63(4), 6936-6956.

Hood, C. (1995). The "new public management" in the 1980s: Variations on a theme. *Accounting, Organizations and Society*, *20*(2–3), 93–109. https://doi.org/10.1016/0361-3682(93)E0001-W

Hyndman, N., & Lapsley, I. (2016). New public management: The story continues. *Financial Accountability & Management*, *32*(4), 385–408. https://doi.org/10.1111/faam.12100

IMF. (2018). Fiscal monitor: managing public wealth. https://www.imf.org/en/Publications/FM/ Issues/2018/10/04/fiscal-monitor-october-2018

Jamali, H. R., & Nikzad, M. (2011). Article title type and its relation with the number of downloads and citations. *Scientometrics*, *88*(2), 653–661. https://doi.org/10.1007/s11192-011-0412-z

Kaplan, R. S. (1984). The evolution of management accounting. *Reading in accounting for management control*. https://doi.org/10.4324/9781315673738

Lapsley, I. (1988). Research in public sector accounting: an appraisal. *Accounting, Auditing & Accountability Journal*, 1(1), 21-33.

Li, J., Sanderson, M., Willett, P., Norris, M., & Oppenheim, C. (2010). Ranking of library and information science researchers: Comparison of data sources for correlating citation data, and expert judgments. *Journal of Informetrics*, *4*(4), 554–563.

Linnenluecke, M. K., Marrone, M., & Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, *45*(2), 175–194.

Martínez-López, F. J., Merigó, J. M., Valenzuela-Fernández, L., & Nicolás, C. (2018). Fifty years of the European Journal of Marketing: a bibliometric analysis. *European Journal of Marketing*, *52*(1–2), 439–468. https://doi.org/10.1108/EJM-11-2017-0853

Mathankar, A. R. (2018). Bibliometrics : an overview. *International Journal of Library & Information Science*, *7*(3), 9–15.

Merigó, J. M., Pedrycz, W., Weber, R., & de la Sotta, C. (2018). Fifty years of Information Sciences: A bibliometric overview. *Information Sciences*, *432*, 245–268.

Moya-Anegón, F., Chinchilla-Rodríguez, Z., Vargas-Quesada, B., Corera-Álvarez, E., Muñoz-Fernández, F. J., González-Molina, A., & Herrero-Solana, V. (2007). Coverage analysis of Scopus: A journal metric approach. Scientometrics, 73(1), 53–78.

Normanton, E. L. (1966). *The accountability and audit of governments: A comparative study.* Manchester University Press.

Pallot, J. (1992). Elements of a theoretical framework for public sector accounting. *Accounting, Auditing & Accountability Journal*, *5*(1), 38–59. https://doi.org/10.1108/09513579210008244

Palmatier, R. W., Houston, M. B., & Hulland, J. (2018). Review articles: Purpose, process, and structure. *Journal of the Academy of Marketing Science*, *46*(1), 1–5.

Pollitt, C., & Bouckaert, G. (2000). *Public Management Reform: A Comparative Analysis*. Oxford University Press, Oxford.

Polzer, T., Grossi, G., & Reichard, C. (2022). Implementation of the international public sector accounting standards in Europe. Variations on a global theme. *Accounting Forum*, *46*(1), 57–82.

Premchand, A. (1975). Toward functional government accounting systems. *Finance & Development* 12(4), 33., 1986–33.

Rossi, F. M. (2016). Public Sector Accounting. *Global Encyclopedia of Public Administration, Public Policy, and Governance* (p. 1). https://doi.org/10.1007/978-3-319-31816-5

Salisbury, L. (2009). Web of Science and Scopus: A comparative review of content and searching Capabilities. *The Charleston Advisor*, *11*(1), 5–18.

Sangster, A. (2015). You cannot judge a book by its cover: The problems with journal rankings. *Accounting Education:*, *24*(3), 175–186. https://doi.org/10.1080/09639284.2015.1055929

Santis, S., Grossi, G., & Bisogno, M. (2018). Public sector consolidated financial statements: a structured literature review. *Journal of Public Budgeting, Accounting & Financial Management*, *30*(2), 230–251. https://doi.org/10.1108/JPBAFM-02-2018-0017

Steccolini, I. (2019). Accounting and the post-new public management: Re-considering publicness in accounting research. *Accounting, Auditing & Accountability Journal*, *32*(1), 255–279.

Taipaleenmäki, J., & Ikäheimo, S. (2013). On the convergence of management accounting and financial accounting - the role of information technology in accounting change. *International Journal of Accounting Information Systems*, *14*(4), 321–348.

Thelwall, M. (2020). Author gender differences in psychology citation impact 1996–2018. *International Journal of Psychology*, *55*(4), 684–694. https://doi.org/10.1002/ijop.12633

Timoshenko, K., & Adhikari, P. (2010). A two-country comparison of public sector accounting reforms: Same ideas, different paths? *Journal of Public Budgeting, Accounting & Financial Management*, *22*(4), 449–486. https://doi.org/10.1108/jpbafm-22-04-2010-b001

Tran, Y. T., Nguyen, N. P., & Hoang, T. C. (2021). Effects of leadership and accounting capacity on accountability through the quality of fi nancial reporting by public organisations in Vietnam. *Journal of Asia Business Studies 15*(3), 484–502. https://doi.org/10.1108/JABS-02-2020-0077

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, *84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

Van Helden, G. J. (2005). Researching publisector transformation:the role of management accounting. *Financial Accountability & Management*, *21*(1), 99–133. https://doi.org/10.1111/j.0267-4424.2005.00211.x

Van Helden, J., & Argento, D. (2020). New development: Our hate–love relationship with publication metrics. *Public Money & Management*, *40*(2), 174–177.

Vivian, B., & Maroun, W. (2018). Progressive public administration and new public management in public sector accountancy: an international review. *Meditari Accountancy Research*, *26*(1), 44–69. https://doi.org/10.1108/MEDAR-03-2017-0131

Wang, Z., & Miraj, J. (2018). Adoption of International Public Sector Accounting Standards in public sector of developing economies -analysis of five South Asian countries. *Research in World Economy*, *9*(2), 44–51. https://doi.org/10.5430/RWE.V9N2P44

Zakaria, R., Ahmi, A., Ahmad, A. H., Othman, Z., Azman, K. F., Ab Aziz, C. B., ... & Shafin, N. (2021). Visualising and mapping a decade of literature on honey research: a bibliometric analysis from 2011 to 2020. *Journal of Apicultural Research*, 60(3), 359-368.

Zamani, M., Yalcin, H., Naeini, A. B., Zeba, G., & Daim, T. U. (2022). Developing metrics for emerging technologies: identification and assessment. *Technological Forecasting and Social Change*, *176*, 121456. https://doi.org/10.1016/j.techfore.2021.121456