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Systematic Overview Research on standard Costs in Businesses

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ABSTRACT:

Standard costs are estimated costs to produce a product or service. Based on standard costs, management accountants can estimate, control and evaluate costs in the unit's production process. Building standard costs in an industry is one of the methods to control costs and minimize operating costs for businesses. This article aims to evaluate research trends on standard costs in enterprises based on documents in the Google Scholar database in the years 2015–2023. The results show a growing interest in research on standard costing in businesses, with 2022 and 2023 being the years with the highest number of publications and many journals having published up to 72 and 78 publications on this issue. Finally, the keyword analysis identified a variety of content that will be important research points for future research.

Keyword: Standard costing, enterprise, systematic literature review, VOSviewer.

1. Introduction

In the current period, businesses are always in a state of having to find ways to minimize operating costs. Standard costs (or standard costs) are estimated costs to produce a product or service. Based on standard costs, management accountants can estimate, control and evaluate costs in the unit's production process. Therefore, building standard costs in an industry is one of the methods to control costs and minimize operating costs for businesses.

There have been many studies in many different countries on standard costs in businesses. Therefore, in this study, it helps readers grasp the development and quality of information about the situation of "applying standard costs" through the frequency of keyword use, number of citations and number of times authors and co-authors are cited over time. At the same time, it helps future researchers know the trends of this topic over time.

The article clarifies the following research questions, including Q1: What is the number of articles on standard costs in enterprises published from 2015 to 2023? Q2: What topics are the keywords used grouped into? And have these keywords changed and gained strength over time?

To answer the above questions, the study reviewed 185 articles published in the period 2015-2023. Research conducted through bibliometric analysis makes a great contribution to the research community because through bibliometrics, a valuable amount of information can be collected about a topic. By reflecting on what has been done and what needs to be researched in the future, the article aims to add to the literature on different methods and contexts to assist researchers on standard costing in enterprises. The research is divided into parts: defining the conceptual foundation, applied methods, research results and concluding remarks.

2. Theoretical basis

Standard costing was considered during the industrial revolution in England and the introduction of management science and motion studies in America (Fleischman & Tyson, 1998). Standard costing and budget control are often linked together (Boyns, 1998).

At the time of the industrial revolution, the benefits of standards were initially simple but quite clear, useful for decision making in some businesses (Fleischman & Tyson, 1998). Boyns, Matthews & Edwards (2004), also show clear evidence of standard costing applied in the British chemical industry in the early 20th century.

Debate continues among some researchers regarding the development of standard costing in the UK and US (Parker, 1969; Armstrong, 1987 and Wardell and Weisenfeld, 1991), however the article is historical in nature. mentioned by Fleischman, Boyns and Tyson in 2008 suggests that this is not necessary, while there is little clear evidence that standard costing is widely used in British businesses in the present century. 20th century.

The main point of standard costing again comes from the ability to plan but at the unit level within the business and use available information to conduct variance analysis to exercise control over the operations of the business. A standard (norm) is determined by estimating the costs of materials, labor, and overhead required for one unit of product or service.

Determining standard costs is the foundation for product costs and selling prices, and comparing standard costs at actual output levels with actual costs to control business operations (Bowhill & Lee, 2002). Additionally, this data can be leveraged as part of an incentive system, potentially influencing individual and group motivation, which in turn has an impact on performance management. Badem et al., 2013 also provide further evidence on the use of standard costs in decision making and performance evaluation.

There was increasing debate about the use of standard costing as an accounting tool in the mid-1990s and continued into the 21st century with scholars such as Johnson & Kaplan, 1987; Monden & Lee, 1993; Ferrara, 1995; Lucas, 1997; Fleischman & Tyson, 1998; Hilton, 2001 and Gupta & Gunasekaran, 2005, both show that it is no longer relevant. Many related debates surround specific business changes that have impacted manufacturing processes such as advanced manufacturing technology, shorter product life cycles and reduced labor as a proportion of total product costs. (Badem et al., 2013).

Standard costing continues to be proven to be a key tool that plays an important role for management accountants. The widespread use of standard costing is found in developed and developing countries and in different industries from different surveys over time such as Puxty & Lyall, (1990), Joshi, (2001) and Marie et al (2010). National studies such as Ghosh & Chen, (1996) show increasing usage among companies in Singapore, while Sulaiman et al (2008) find 70% of Malaysian businesses and 76% of Japanese companies use standard costing. In the UK, reported usage was over 90% in the 1993 Lyall & Grahams study to 76% in the 1998 Guilding et al study and the 2009 Ross and Kovachevs study, continuing at over 70% in businesses were surveyed using analysis of variance.

3. Method

This study uses the systematic literature review method SLR (Systematic Literature Review) of Tranfield et al. (2003). Sample selection for the study was based on PRISMA (priority items for systematic reviews and meta-analyses) originally proposed by Liberati et al. (2009) and updated in 2021 by Page et al. (2021). The PRISMA flow diagram is based on three steps: identification, screening, and study inclusion.

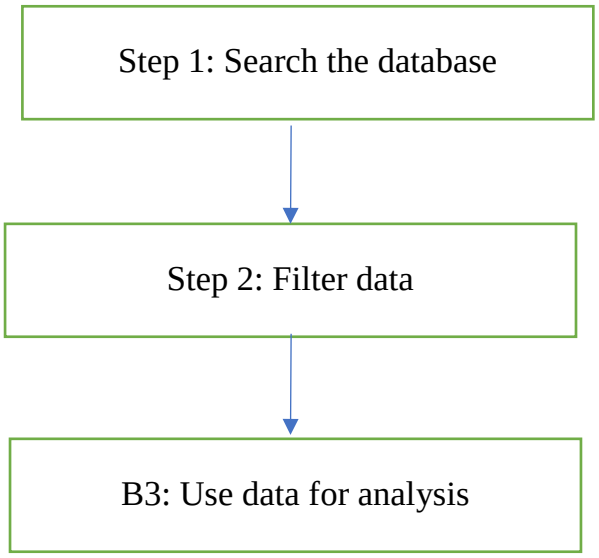


Figure 1. Research process

As a first step, the authors began by selecting a database to collect articles to include in the study. The database chosen is Google Scholar. Research studies standard costs in businesses, so this is a highly scientific database to collect data. Data was collected on December 27, 2023, with the use of the following keywords “standard costs” and “business”. The Boolean operator AND is placed between keywords in the search. A total of 489 results were found from Google Scholar from 2015 to 2023.

In the second step, the author group screened to remove inappropriate documents through technical screening and content screening. For technical screening, documents in the following categories: Encyclopedias, editorials, short communications, small reviews, and book chapters will be eliminated by deselecting. For content screening, documents are pre-read to eliminate documents with irrelevant content even though they contain search keywords. The results after filtering showed that all 489 results met the filtering conditions for inclusion in the study.

The remaining number of documents after the two steps were analyzed with an overview of the SLR (systematic literature review) document system and entered into VosViewer software to analyze keywords and co-citation analysis. The results of SLR analysis are presented in tables and graphs. The results of bibliometric analysis will be presented in visual form. From the analysis results, the study finds popular research directions, names the research directions, and suggests future research directions.

4. Results

4.1 Statistics on year of publication

From 2015 to 2023, there were a total of 489 articles on standard costing in businesses indexed in Google Scholar with an average of 54 articles published per year. The lowest number of articles was in 2015 (42 articles published) and 2018 (41 articles published). And in 2022 and 2023, are the years with the highest number of articles published (72 and 78 articles, respectively). The statistical results of the year of publication show that researchers are paying a lot of attention to standard costs in businesses. However, statistics on citations show that articles in 2016 have the most citations with a total of 1,467 citations. The low is 104 citations for articles published in 2023.

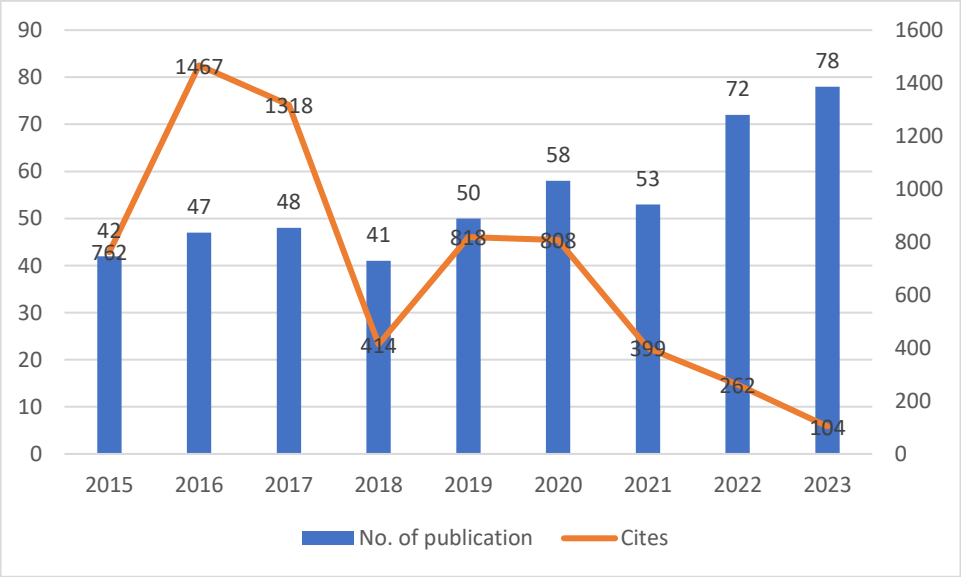


Figure 2. Chart of the number of studies over the years

The publications with the highest number of citations are shown in table 1. With the article "A systematic review of the cost and cost effectiveness of using standard oral nutritional supplements in community and care home settings" published in 2016 by the publisher The Elsevier version is the article with the most citations in the period 2025 - 2023, with 376 citations. Ranked second in terms of citations with 180 times is the article "Cost-effectiveness of intensive versus standard blood-pressure control" published in 2017 by Mass Medical Soc publishing house.

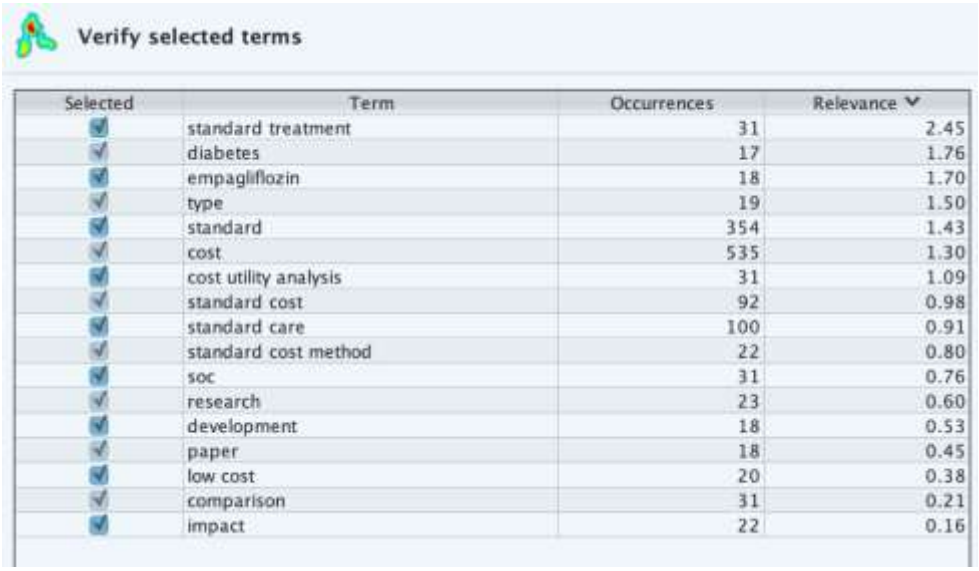
Table 1. List of publications with the highest citation index

Cites	Authors	Title	Year	Publisher
376	M Elia, C Normand, A Laviano, K Norman	A systematic review of the cost and cost effectiveness of using standard oral nutritional supplements in community and care home settings	2016	Elsevier
180	AP Bress, BK Bellows, JB King, R Hess…	Cost-effectiveness of intensive versus standard blood-pressure control	2017	Mass Medical Soc
140	CM Resnick, G Inverso, M Wrzosek, BL Padwa…	Is there a difference in cost between standard and virtual surgical planning for orthognathic surgery?	2016	Elsevier

137	A Huang, JJ Ryu, G Dervin	Cost savings of outpatient versus standard inpatient total knee arthroplasty	2017	ncbi.nlm.nih.gov
131	B Langenberg, H Pham…	Reducing the cost of implementing the advanced encryption standard as a quantum circuit	2020	ieeexplore.ieee.org
121	M Huang, Y Lou, J Pellissier, T Burke, FX Liu, R Xu…	Cost effectiveness of pembrolizumab vs. standard-of-care chemotherapy as first-line treatment for metastatic NSCLC that expresses high levels of PD-L1 in …	2017	Springer
103	B Diederich, R Lachmann, S Carlstedt…	A versatile and customizable low-cost 3D-printed open standard for microscopic imaging	2020	nature.com

4.2 Results of keyword analysis

In the keyword analysis section, research and select keywords that appear 15 times or more. Keywords are evaluated by the software based on the number of occurrences and total link strength. Keyword analysis results can be exported into files as images. The keyword analysis results are as follows:



Selected	Term	Occurrences	Relevance
☑	standard treatment	31	2.45
☑	diabetes	17	1.76
☑	empagliflozin	18	1.70
☑	type	19	1.50
☑	standard	354	1.43
☑	cost	535	1.30
☑	cost utility analysis	31	1.09
☑	standard cost	92	0.98
☑	standard care	100	0.91
☑	standard cost method	22	0.80
☑	soc	31	0.76
☑	research	23	0.60
☑	development	18	0.53
☑	paper	18	0.45
☑	low cost	20	0.38
☑	comparison	31	0.21
☑	impact	22	0.16

Figure 3. Keywords appearing multiple times

Of the total 3,322 keywords researched, 29 keywords were repeated at least 15 times. Groups of keywords that appear 15 times or more include standard treatment, diabetes, empagliflozin, type, standard, cost, cost utility analysis, standard cost, satndard care, standard cost method, soc, research, development, paper, lowcost, comparison, and impact. The keyword “cost” is the keyword that appears the most with 535 appearances. Next is the keyword "Standard" appearing 354 times.

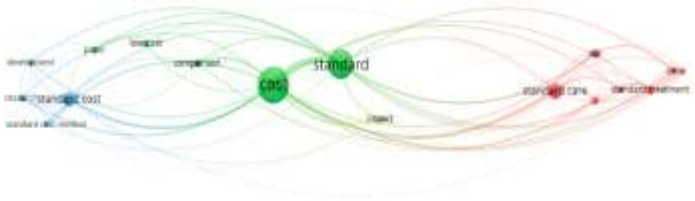


Figure 4. Co-occurrence networks

Figure 4 shows the keyword network. Note that the larger the circle, the more times it appears; the thicker the line connecting the two keywords, the greater the frequency of occurrences. Related keywords are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the keywords are divided into 4 groups, with 17 items, 72 links and total link strength of 1312. Group 1 is represented by

red links with the keywords cost utility analysis, diabetes, empagliflozin, soc, standard care, standard treatment, and type. Group 2 is represented by green links with keywords comparison, cost, low cost, paper, standard. Group 3 is represented by green links with the keywords development, research, standard cost, and standard cost method. Group 1 is represented by yellow links with a single item, impact. With 4 research directions and 17 popular keywords, the results show that the research content on standard costs in businesses has been researched a lot. Future studies can base on that to choose research directions to fill the gap, or analyze more deeply.

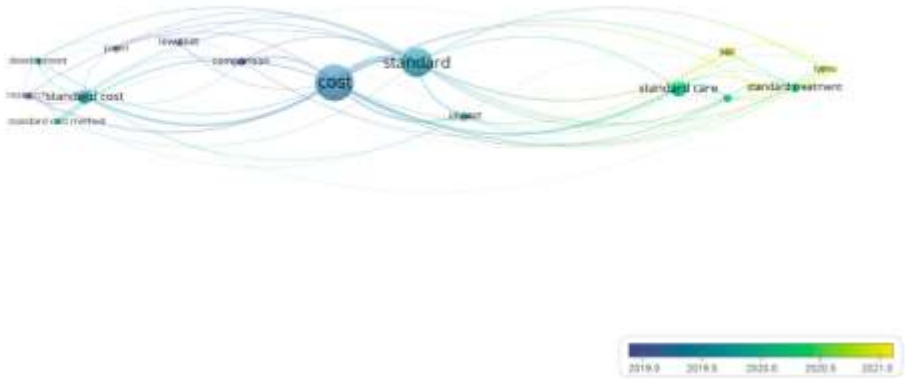


Figure 5. Keyword network over time

In addition, the results from the VOSviewer tool have shown the time of keywords appearing. Dark colors represent keywords researched from the first years (2019), in recent studies, keywords have appeared in brighter colors. The keyword appearance time chart shows that standard costs are heavily researched in the period from 2019 - 2021.

4.3 Co-authorship analysis

To understand the tendency to cooperate in research using standard costs in enterprises, this study analyzed co-authorship relationships between individual authors and between organizations. According to Benoit et al. (2018), the analysis results help improve understanding of research collaboration and help discover influential researchers. Figure 6 presents the co-authorship network map. The link between two nodes represents the collaborative relationship between the two authors, and the thickness of the link represents the intensity of the collaboration. Of the total 1,404 authors participating in writing about standard costs in the period 2015 - 2023, there are 12 authors participating in writing at least 4 times.

Selected	Author	Documents	Total link strength
☑	xie, yl	6	12
☑	halverson, ma	4	10
☑	athalye, ra	4	9
☑	hart, pr	4	9
☑	hart, r	5	9
☑	rosenberg, mi	5	9
☑	jiang, y	4	0
☑	latief, y	4	0
☑	lee, j	4	0
☑	wang, y	4	0
☑	zhang, j	4	0

Figure 6. Co-authors appear multiple times

Figure 7 shows the co-authorship network. Related authors are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the co-authors are divided into 2 groups, with 6 items, 13 links and total link strength of 29. Group 1 is represented by red links with the author groups Athlye, Halverson, and Hart. Group 2 is represented by green links with authors Hart, Rosenberg, and Xie.

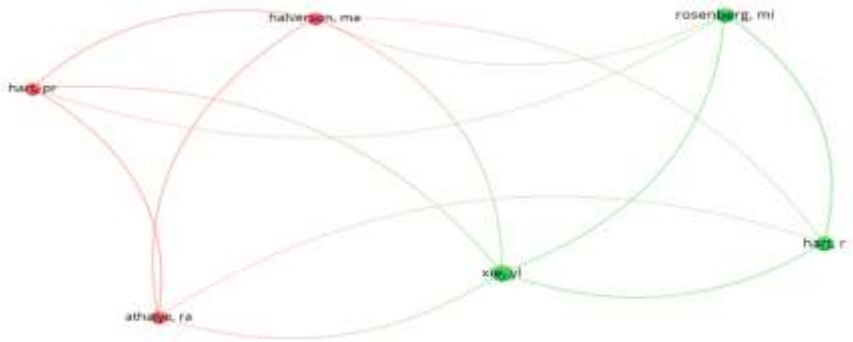


Figure 7. Co-authorship analysis by units of authors

Figure 8 shows the author network over time. The period 2015 - 2019 is the period with the most authors combining research on standard costs in businesses.

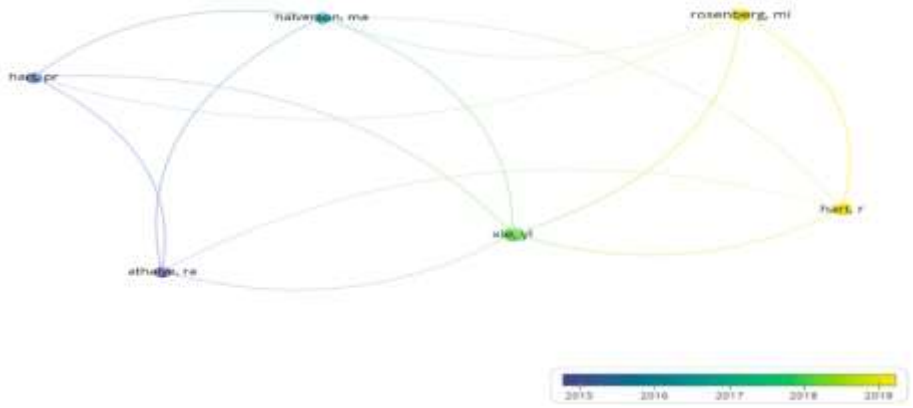


Figure 8. Co-authorship analysis by time

5. Conclusion

In this study, we evaluated global publications on enterprise standard costing indexed in the Google Scholar database published between 2015 and 2023 to provide insights into the number of publications, journal publications, keyword networks and co-authorship networks. This study used bibliometric methods with the help of a number of statistical and data visualization applications to explore research trends in standard cost content in enterprises.

Research results show that there have been a total of 489 articles on standard costs in businesses indexed in Google Scholar from 2015 to 2023. The results of magazine publishing statistics show that in 2022 and 2023, there are the year with the highest number of articles published (72 and 78 articles, respectively). In terms of keywords, a total of 3322 keywords were researched, with 29 keywords repeated at least 15 times. The keyword “cost” is the keyword that appears the most with 535 appearances. Next is the k-word "Standard" appearing 354 times. In terms of research authors, 1,404 authors participated in writing about standard costs in the period 2015 - 2023 and 12 authors participated in writing at least 4 times.

The research results have contributed to the general theoretical basis, serving as a basis for reference studies on standard costs in enterprises. Data collected from richer sources such as Scopus or Web of Science are suggestions for further research on standard costs, in addition, future studies can systematically evaluate documents on costs. standard fees in specific sectors, or in specific countries.

REFERENCES

1. Benoit, K., Watanabe, K., Wang, H., Nulty, P., Obeng, A., Müller, S., & Matsuo, A. (2018). An R package for the quantitative analysis of textual data. *Journal of Open Source Software*, *3*(30), 774-774.

2. Boyns, T. (1998). Budgets and budgetary control in British businesses to c. 1945. *Accounting, Business & Financial History*, *8*(3), 261-301.

3. Boyns, T., Matthews, M., & Edwards, J. R. (2004). The development of costing in the British chemical industry, c. 1870-c. 1940. *Accounting and Business Research*, *34*(1), 3-24.

4. Bowhill, B., & Lee, B. (2002). The incompatibility of standard costing systems and modern manufacturing: Insight or unproven dogma?. *Journal of Applied Accounting Research*, *6*(3), 1-24.

5. Joshi, P. L. (2001). The international diffusion of new management accounting practices: the case of India. *Journal of International Accounting, Auditing and Taxation*, *10*(1), 85-109.

6. Fleischman, R. K., & Tyson, T. N. (1998). The evolution of standard costing in the UK and US: from decision making to control. *Abacus*, *34*(1), 92-119.

7. Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of internal medicine*, *151*(4), W-65.

8. Page, M.J., Moher, D., Bossuyt, P.M., Boutron, I., Hoffmann, TC, Mulrow, C.D., ... & McKenzie, J.E. (2021). PRISMA 2020 explanation and elaboration: updated guidance and examples for reporting systematic reviews. *bmj*, *372* .

9. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British journal of management*, *14*(3), 207-222