

The Development of Conventional to Contemporary Port Policy: The Bibliometric Analysis

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Abstract

This study reviews articles on port policy from literature and policies related to ports. This study investigates how port-related policy research has evolved over the last decade. The research was conducted using the bibliometric analysis method. The steps are carried out by conducting an inventory of the Scopus database and analyzed using the VOSviewer device. The data consists of 1235 international journal documents indexed by Scopus. The total number of published documents containing port writings is only 43 authors with five or more documents. Based on citation analysis, journal articles that have an impact on port policy research are divided into ten clusters. Most countries are the United States and China, with the top-ranking Publisher Elsevier Ltd. Based on the bibliometric co-citation mapping technique, it shows how keyword articles are constructed and their relationship. From the concepts, methods, and findings of the co-authors and co-citations based on the analysis, we finally present some strategic research challenges and an elaborated research agenda on port policy.

Keywords: *Policy Development, Conventional Ports, Contemporary Ports, Bibliometric Analysis.*

INTRODUCTION

The role of ports is very vital in the economy, so good port management is needed (1). The port must be equipped with safety facilities (2), delivery security (3), and port support activities. Ports are the backbone of a country's economy (4). Therefore, inconsistency in port management will impact economic risk in the form of loss of investment that should be a source of state revenue (5). In addition, it also has an impact on environmental risks (6), society, and the mobility of goods and services (7). In at least the last five years (2017-2022), there has been an increasingly complex port risk (8), including the poor performance of the transportation service system at the port (9), the entry of investment that creates unfair competition (10), competition between ports (11), the monopolistic policy of the ruler (12), bad port management (13), international trade involving port authorities (14), the impact of the growth of economic globalization on port development (15) the effect of the covid-19 pandemic (14), etc. The study of ports with

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various aspects that have emerged over the past decade has continued to increase. This can be seen from the number of articles published, especially in the 2000s (17), but the focus of research on port policy is still relatively very little. Even the object under study has not focused on the law of port governance. Supposedly, the scope of the policy covers legal reform (18). Regulation is needed to support the development of various strategic alternatives (20) and the effectiveness of regulations that support port governance (21).

Port Policy is the most mentioned keyword when discussing port issues. This is due to the absence of definite policies in the port sector (22), so the port is not managed properly. Therefore, the keyword port is related to the existence of the government as a regulatory and supervisory authority (1), and sustainability is the ultimate goal of good port governance. (23) These keywords show a significant relationship between each other. The policy is central in implementing port governance by focusing on shipping aspects.

The main objective of the review of this journal document is to identify the dominant factors influencing port management policies in various countries and how these keywords are interrelated. To see this relationship, a bibliometric analysis is needed. The benefits obtained from the results of the bibliometric analysis can be used to conduct a more in-depth analysis of the emergence of shared keywords (24) (25). This study assessed the most cited journals, articles, authors, countries, research areas, and themes on port policy. The results will identify practical and interesting issues as areas of need for other researchers and regulators interested in discussing port management policies that intersect with maritime law.

METHOD

This port policy study uses bibliometric analysis methods. Using this method, a large amount of data is compiled to present the structure and intellectual trends of the research topic (26). The research method is shown in Figure 1.

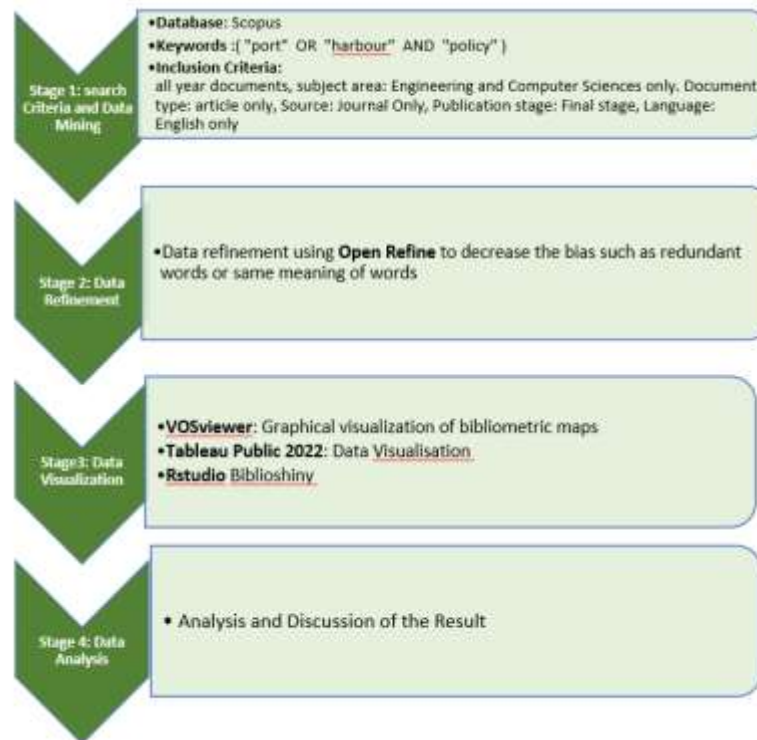


Figure 1. Research Stage: From Data Search to Analysis (26).

The steps are carried out by taking an inventory of the Scopus database with the VOSviewer tool. The data obtained are 1235 international journals indexed by Scopus. The stages of searching and mining data, as shown in Figure 1, were chosen using Scopus as the database source. Mining was carried out on June 18, 2022. The keywords used based on the article title and abstract, keywords were ("port" or "port" and "policy"). 1235 journals were selected from the cleaned data. Cleaning is done to avoid overlapping keywords. Data analysis was carried out through VOSviewer using excel and word programs. VOSviewer is a tool used to analyze documents related to the object under study. This tool is used to create a visual map of the author, keywords of the author, citation, institution, and country. The inclusion criteria are all documents from 2013 to 2022. This study shows the development of research on ports, port policies, and port governance. The type of document is only journal articles within ten years. The selected journals are documents that have undergone a more rigorous review process, and the published journals are final. The documents reviewed are only English documents. This is done to make the journal easier to understand. The number of documents after the inclusion criteria were applied as detailed in the table. 1.

Table 1. Number of Inclusion Criteria Documents

No.	Inclusion Criteria	Number of Scopus Documents
1	Keywords ("port" or "port" and "policy")	4084
2	Document type "article", source type "journal"	2781
3	Final publication stage and only in English	2514

Repair Data Set

The Scopus dataset contains a large number of keywords that may have the same meaning or definition, then separates them from different meanings. To minimize the meaning bias of the dataset, Open Refine software was used.

One of the analyses carried out is a co-occurrence analysis based on the author and index keywords. This is done to minimize bias. After the purification process is complete, it is continued by exporting the refined dataset into CSV.

From the above process, visualization and analysis were then made using VOSviewer software and public tableau based on the enhanced dataset. We limit the keyword search in this study to Ports, Police, and Government categories. The data has been cleaned of other types of papers, such as proceedings and book chapters, so only journals are presented.

RESULTS AND ANALYSIS**Data visualization**

After stage 1 and stage two is complete, the next step is to create a data visualization. At this stage, it begins by sorting out the publication trends. The basic indicator of a publication trend is the number of journal articles on a subject indicating the research process on a particular topic (27). As previously stated, this study used 1235 articles published in Scopus indexed journals. The number of journal articles published over ten years can be seen in Figure 2.

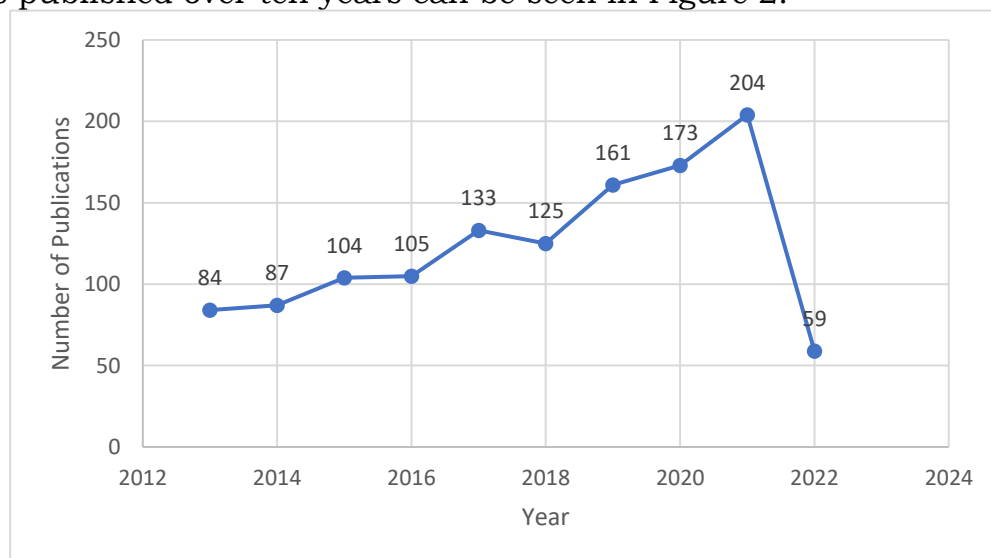


Figure 2. Number of Port Policy Journals in a Year for a Decade (2013-2022)

Research data is presented for the last ten years (2013 – 2022). During that decade, the average publication amounted to 123 articles per year. We divide this research into two periods, namely period I (2013-2017) and period II (2018-2022). The number of publications for period I reached 41.54% of the total publications. The highest number of publications occurred in 2017, with 133 articles. In the entire first

period, there was an increase in the number of publications every year. In period II, the number of publications reached 58.46% of the total articles. The highest publication occurred in 2021, which was as many as 224 articles. At the beginning of period II (2018), there was a decrease in the number of articles compared to the previous year.

Meanwhile, in the next three years (2019 -2021), the number of publications increased significantly, namely 544 journal articles (45% of the total number of articles). In 2022 there are 54 articles, so it is predicted that for the last six months of 2022, there will be a decrease compared to the previous five years in the second period. The highest peak occurred in 2021 with 204 articles (16.51%) or an increase of 2.51%, while in previous years, 14% (2020) and 13% (2019), an average increase of 1%. However, until mid-2022, it decreased by 4.77%, at least it is predicted to decrease to 9.54% by the end of 2022 so that the decline reaches 6.97% from the previous year (2021). As seen in Figure 3, it can be seen that the pandemic conditions (2020-2021) do not have a significant influence on the motivation to study this field. However, research in this field requires field research as supporting data. This is indicated by the highest number of publications in 2021. The impact of the covid-19 pandemic occurred in 2022; the Covid-19 pandemic caused a decrease in the number of article documents produced. This is possible because the post-pandemic is more focused on recovering the condition than conducting research.

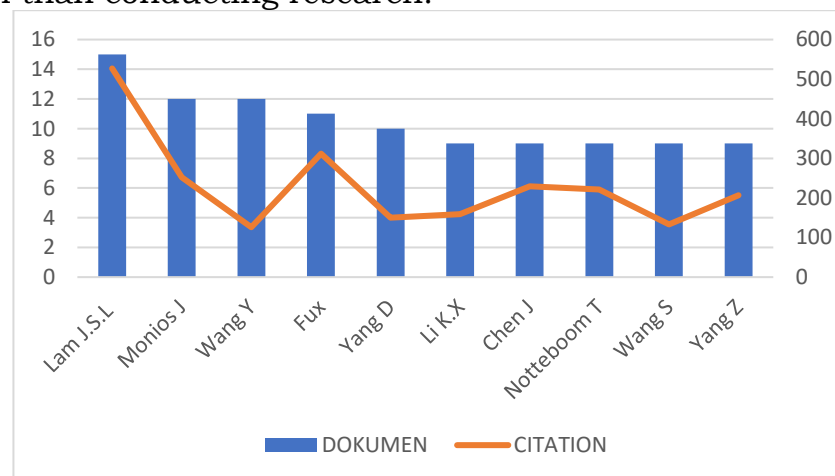


Figure 3. Distribution of the top ten authors by the largest number of documents

Based on Figure 3. Ranking of authors based on the highest number of documents out of a total of 2,855 who have published writings on port policy, only 43 (1.5%) authors have five or more documents. The author with the highest number of documents is Lam J.S.L by produced 15 documents. The author is in the first place. They were followed further in 2nd place by Monios J and Wang Y, each with 12 Documents. In the next position is Fu. X with 11 articles, in the ranking of 3rd position. The 4th position is occupied by Yang D with ten articles. Li.KX, Chen J, and Notteboom T are jointly occupied by Li.KX, Chen J, and Notteboom T with nine articles each.

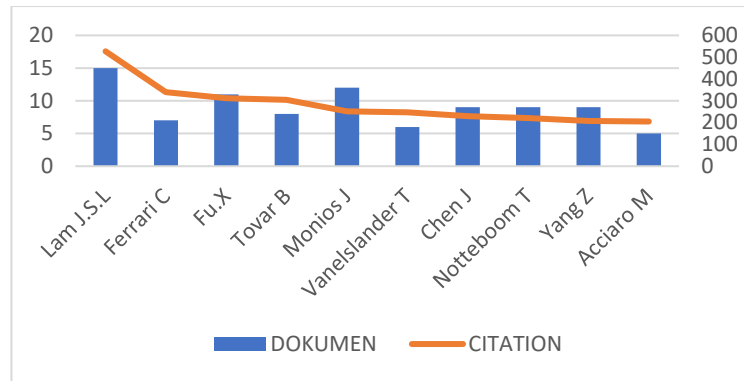


Figure 4. Distribution of the Top Ten Authors by Highest Number of Quotations

Based on Figure 4. The author with the highest number of citations was held by Lam J.SL, producing 527 citations. In this regard, Lam J.SL holds the highest rating for documents and citations. Interestingly, the author (Wang) has the product in second place (12) while the citation count hit a low with 126 citations. Products from Ferrari C (7 documents) have 340, Vanelslander (6 documents) have 247 citations, and Acciario has (5 documents) with 205 citations. Figures 4 and 5 show that authors with a large number of products are not necessarily cited significantly by other authors

In the following, the relationship between the authors will be mapped. As shown in figure 5.

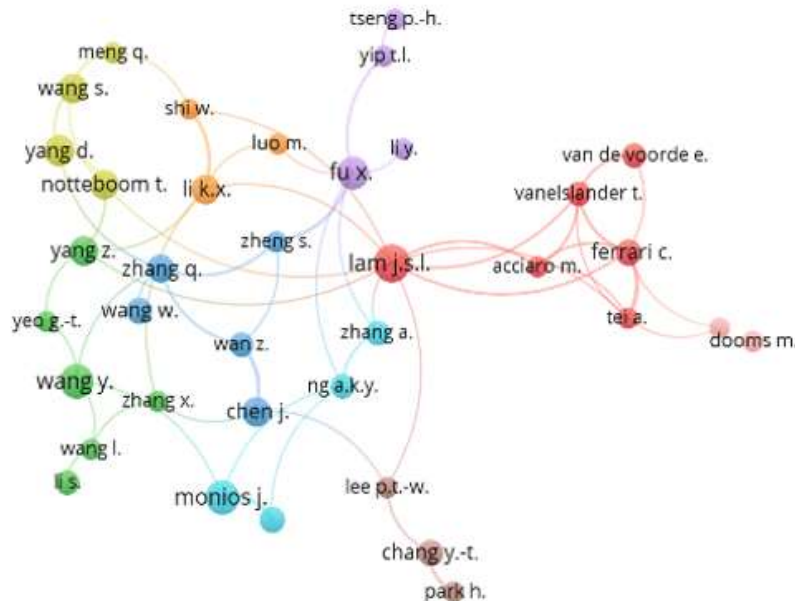


Figure 5. Mapping Co-Authorship

Figure 5 is a relational graph between one author and another. This relation is divided into 7 clusters indicated by different colors (red, blue, purple, orange, green, yellow, and brown), and the proximity of each quote is shown by the character of the line thickness in the network. Groups distinguish the co-authorship network visualization map in the figure with large circles. In this figure, cluster 1 (red color)

shows a strong relationship between the authors represented by Lam JSL, which produces the most documents and citations in collaboration with other authors in the same cluster, Ferrari. C; vanesa; Ven devoorde, Tei, Acciario, and Dooms). In this case, Lam JS posts

Most of the issues discussed by Lam JSL are port policy, environmental, economic, and sustainability issues. The policy topics or port management discussed by Lam JSL include the sustainable development of port cities (28). One of which is sustainability and the interaction between cities and ports (28). System framework for the sustainable development of Port City (29). Ship shipping and transshipment flow problems (30) and the perspective of port development are analyzed empirically (31). Further study on the development of dynamic regional port clusters (32) and port strategy through supply chain management (33).

Meanwhile, the environmental studies discussed by Lam JSL include; greenery at the port terminal (34), Incentive policy (31), and Environmental sustainability at the port (35). Environmental and economic studies, among others, in his writings on the impact of port environmental policies and economic opportunities (36). Factors Institutional conditions for making decisions about contractual risk (37). In the context of port policy development, modeling the impact of virtual arrival policies in dock allocation is carried out(38). Lam provides alternative port protection through policy advocacy. Advocacy is based on comparative lessons from emerging cases related to port protection (19).

Many of Lam's journals have been cited by Ferrari. The port governance issues raised by Ferrari include the governance model and port concessions and policy perspectives(39), the effect of planning transformation on the port (37), and innovation in port terminal operation (41). Another author, Vanelslander, also cites Lam's work, discussing specific topics related to business competition. The paper includes, among others, competition in container ports, the effect of changes in environmental policy (42), and the topic of economics, namely international emission regulations in the field of sea transportation seen from the feasibility and economic impact (43).

The topic of business competition related to ports recorded in the Scopus database uses VOSreview found in journals with research topics including Ports of Policy in terms of Competition And Cooperation (44), Global emission tax and port privatization policy under international competition (45), Strategic port competition in the development of multimodal networks by considering shipper options (46), Dry port feature analysis and regional competition (47), vertical contract selection under the chain-to-chain service competition in the delivery supply chain (48), cruise ship origin port competition model based on cruise ship supply chain (49), port competition models on intermodal networks and pricing strategies (50), pricing strategy for port competition and cooperation (51), Modeling the effects of unilateral and

uniform emission regulations under shipping companies and port competition (52). Research how competition drives changes in port governance, strategic decision-making, and government policy (53). In addition, the topic of competition restrictions in the License Agreement is reviewed based on the convergence of Worldwide Competition Laws and Policies in the Intellectual Property Sector (54); Container port competition is associated with the effects of environmental policy changes (42). Research topics on Port competition policy (55) and the impact of port competition on the integration of port services and land transportation (56). Port policies and governance contribute to healthy competition (57).

Also, in this subsection, we analyze the journals that are most productive in publishing articles in ports. There are 1233 journals, but after applying a threshold with a minimum of 5 journal documents, there are ten publishers who meet the threshold, as shown in Figure 6:

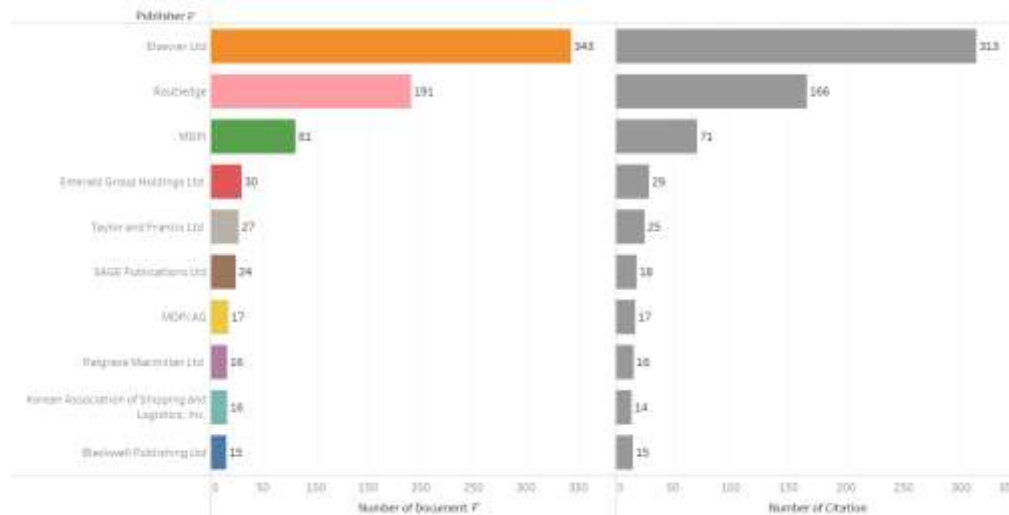


Figure 6. Top Ten With Most Publishers About Port Policy

Based on the data in Figure 6, it can be seen that Elsevier's publisher got the highest rank with 343 documents and a total of 313 citations. The second position (Routledge) was 191 documents with 166 citations, and the third was MDPI. with 81 documents and a total of 71 citations. From rank one to three, the number of documents and citations continued to increase significantly. At the bottom of the ranking is occupied by Blackwell Publishing, with 15 documents and 15 citations. From the lowest rank to level 7, there is no progress. The average number of publications is 145 divided by 7, resulting in about 20.7 or 19%. If you look at Figure 6, it can be seen that the number of documents produced is directly proportional to the number of citations produced.

Elsevier as the highest publisher, at least annually raises topics with keywords related to ports related to legal reform, or port policies, including the port reform program of the 1990s (58), Port reform in Mexico: 1993–2015 (59), From national reforms to local compromise: The evolution of the French model for port management, 2004–2015 (60), Legal reform and devolution of the Spanish Port System(61), Lessons from the port sector regulatory reform in Denmark(18), Impact

of port governance reform on port competition in China (10), Impact of national strategies on gateway ports: An empirical study in Bohai Rim (62). The topics raised show the direction of port development in several countries in the last 20 years.

Meanwhile, port keywords related to governance published by Elsevier can be seen in documents published in 2015-2017, including; Models of governance and port concessions in Europe: Common ground, critical issues, and policy perspectives. (39) Institutional and agency structures in the governance of spatial diversification of the evolution of port systems in Latin America. (63) Port governance in the UK: Planning without policy. (64) Port governance in Turkey. (65) Government policies and governance of Portuguese ports from 2005 to 2015. (66), Port governance and policy change in Belgium 2006–2016. (67), Port governance in China since 2004 (68), Encouraging changes in port governance as strategic decision-making and government policy in the United States. (69). From the data published by Elsevier, it can be seen that studies on the development of port management in various countries.

In the document with the keyword "sustainability" related to ports published by Elsevier, it can be seen from the developments from 2017-2021, including the system framework for the sustainable development of Port City (29), Sustainability assessment of port and port city plans (70), adoption of sustainability practices from inland port operations (71). Sustainability initiatives at Canadian ports (72). The evolution of the port network from a sustainable development perspective. (73) Smart and sustainable port city logistics (74).

Publishers ranked 2nd, namely Routledge published journal documents with the keywords sustainability linked to port between 2014 and 2021, including Environmental sustainability in seaports: a framework for success innovation (35), Sustainability and interactivity between cities and ports (75), Integrating urban and port planning policies in a sustainable perspective (76), comparative analysis of sustainable development goals through the disclosure of environmental sustainability (77). Sustainable development between Gulf ports is based on a complex network (78).

The topic with the keyword port is related to sustainability, while sustainability is related to governance, so the linkage comes to the policy, as shown in Figure 7:

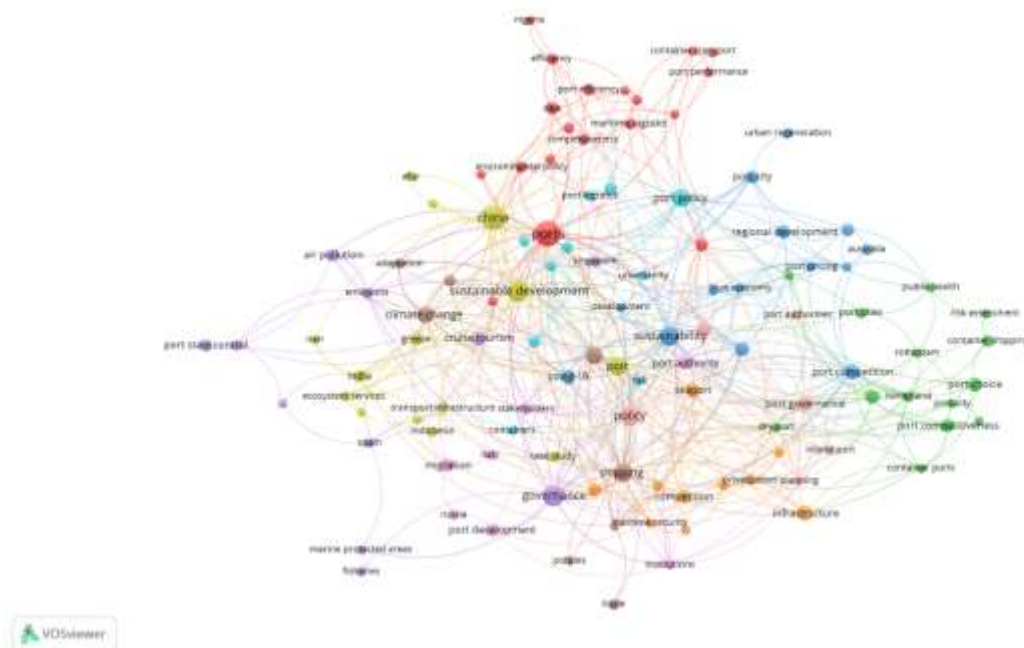


Figure 7. Keyword Network Visualization Based on Total Link Strength

Overall the port policy keyword link network reached 4287 keywords. The keywords obtained from this search are classified into 10 clusters. The most highlighted terms in cluster 1 regarding ports and across the network are related to port policies. The map visualization (figure 7) obtained the results of 463 port policy keywords. These results are divided into 10 clusters so that there are five occurrences, and there are 113 keywords that meet the criteria. Clusters are visualized with different color sequences as follows; cluster 1 (Red); cluster 2 (Green); cluster 3 (blue); group 4 (yellow); Group 5 (Purple); Cluster 6 (Turkish blue); Group 7 (orange); Clusters 8, 9 and 10 are shown in faded yellow:

Table 2. Number of Clusters Based on Topics Issued

Cluster 1 (19 items)	Cluster 2 (34 items)	Cluster 3 (14 items)	Cluster 4 (14 items)	Cluster 5 (11 items)
brazil competitiveness container terminal container transport data development india usa efficiency environmental policy food security green port kati maritime logistics nigeria port efficiency port management port performance ports stakeholder management transportation	australia container ports container shipping dry port external costs hotelbased intermodal transport literature review port choice port cities port competitiveness port-city public health risk assessment rotterdam	australia blue economy covid-19 development maritime transport pollution port city port competition port pricing regional development south africa sustainability urban planning urban regeneration	ship belt and road initiative case study china ecosystem services greece india indonesia iran port remote sensing sustainable development transport infrastructure urbanization	air pollution cruise tourism emissions fisheries governance marine protected area maritime policy port state control short sea shipping singapore spain
Cluster 6 (10 items) container terminals containers energy efficiency liner shipping maritime transportation port logistics port policy risk slow steaming sustainability	Cluster 7 (10 items) competition infrastructure maritime security mexico port reform port security privatization regulation seaport	Cluster 8 (8 items) adaptation climate change policies resilience seaports shipping supply chain trade	Cluster 9 (7 items) institutions italy migration port authority port development russia stakeholders	Cluster 10 (6 items) inland port logistics planning policy port authorities port governance

The discussion on ports dominates the entire study, while port policies occupy the tenth cluster. In each cluster, three main issues will be designated. The main issues were found in the first cluster regarding

competitiveness, container terminals, and container transportation. The main problems related to container ports, container shipping, and dry ports were found in the second cluster. The third cluster found the main issues of Australia, the Blue economy, and COVID-19. The fourth cluster includes the main issues of ships, belts, road initiatives, and case studies. Air pollution, cruise ship tourism, and emissions are the main issues in the fifth cluster. The sixth cluster found major problems, including container terminals, containers, and energy efficiency. The main issues in the seventh cluster are competition, infrastructure, and maritime security. Adaptation, climate change, and policy are the main issues in cluster 8. The main studies in cluster nine are, among other institutions, Italy and Immigration. The last cluster, which is the tenth, discusses the main issues regarding land ports, logistics, and planning.

The main issues regarding port policy are located in clusters 8 and 10, so studies on port policy issues are still not given much attention or research. Related to these problems, provide recommendations to researchers or policymakers to be selected and studied further and in-depth. To clarify the current topic that can be an option to study is shown in Figure 8:

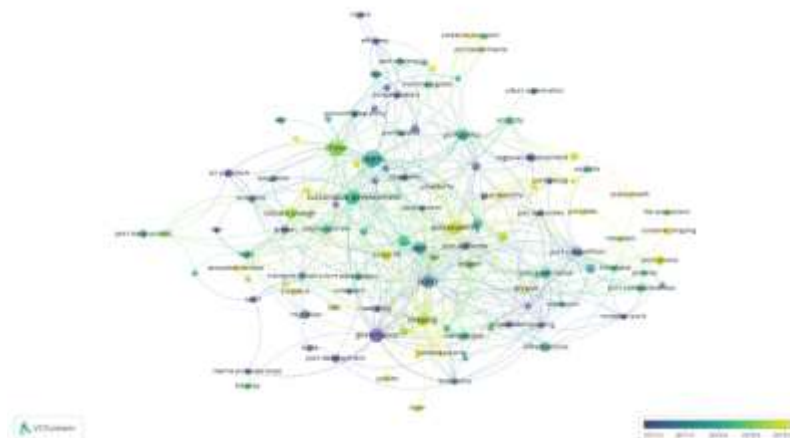


Figure 8. Co-Authorship Network Visualization Based on Overlay Visualization

It can be seen in Figure 8 that the keywords "port" or "port" and "police" are connected by a thin yellow line to the yellow node, meaning that all these keywords are the latest topics on port policy. From authorship to visualization, contemporary topics are explained (2019). The overlay image displays the latest topics that can be studied, including container shipping, port choice, supply chain, trade, governance, dry port, police ecosystem services, Indonesia, and maritime security. These recent topics are still little researched.

The benefits of this information can be used as a reference for researchers to study current topics. Other information from the overlay image also shows that although Indonesia is the world's maritime axis country (79). However, studies on port policy are still very few. The topic of the study that discusses Indonesia is contained in 7 documents. Of the existing documents, only three documents related to keywords. Case studies on shipping and trade are the topics studied, including in

a document entitled "Design of shipping networks in emerging markets: The case of Indonesia." (80), Regional transportation and trade cost perspective (81). However, research in Indonesia has examined the opportunities and challenges of port performance in Indonesia from a regulatory aspect (82). As previously stated, security, services, trade, investment, and competition are the main challenges and are factors that influence the formation of good port policies or port management.

Searching the Scopus dataset using the keywords Port and Port policy presents country ranking data as shown in Figure 9:

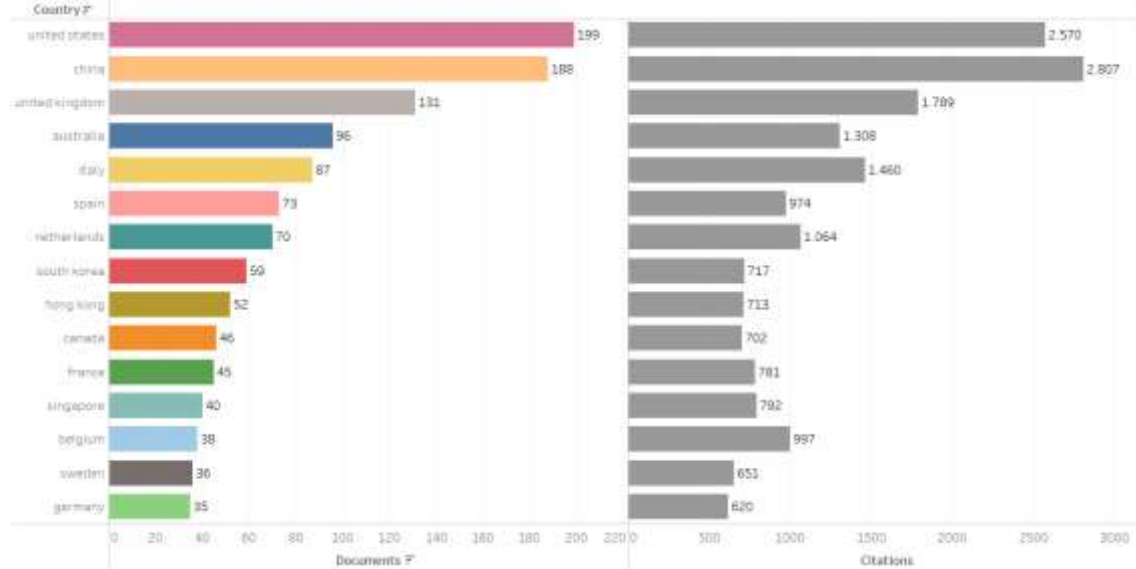


Figure 9. Visualization of the top 15 countries by the number of documents

An interesting fact is that most of the bibliometric analysis results in the field of ports and port policy are seen from the most productive countries, namely the United States and China, which always lead in the top 2 rankings. However, the productivity of the number of documents is not always directly proportional to the number of citations. This is shown in Figure 10 on the right, in a graph between China and the United States alternating in rankings for the number of documents cited. To clarify the position shown in the table. Three shows that the ranking of the number of documents is not directly proportional to the ranking in citations. In the graph between China and the US, alternating places in the rankings get the number of documents seized.

Table 3 Ranking of Countries by Number of Quotations

Country	Earning Number of Quotes			Rank in Document Number Acquisition
	Rating	quote	percentage	
China	1	2.807	15.64%	2
United States of America	2	2,570	14.32%	1
English	3	1,789	9.97%	3
Italy	4	1,460	8.14%	5
Australia	5	1.308	7.29%	4

Dutch	6	1.064	5.93%	7
Belgium	7	997	5.56%	13
Spaniard	8	974	5.43%	6
Singapore	9	792	4.41%	12
France	10	781	4.35%	11
South Korea	11	717	4.00%	8
Hong Kong	12	713	3.97%	9
Canada	13	702	3.91%	10
Sweden	14	651	3.63%	14
German	15	620	3.46%	15
		17,945		

Meanwhile, in terms of the number of documents, Spain was ranked 6th, while Nederland, with 1,064 citations (6.93%), was ranked 6th, but in terms of the number of documents, it was in 7th position. Singapore is in 9th position with 781 citations (4.41%), while in terms of the number of documents, it is in 12th position. South Korea is in 11th place with 717 citations, while South Korea is in 8th place in getting the number of documents. Belgium, with 997 citations (5.56%), is in 7th place, while in terms of the number of documents, it is in 13th position. The most extreme thing is shown by Belgium, which has a small number of documents, i.e., 38 documents (3.15%) are ranked 13th, but the number of Belgians has 997 citations (5.56%) in 6th place. While the Netherlands, with 1,064 citations (6, 93%), ranks 6th, the number of documents ranks 7th. Singapore is in 9th position with 781 citations (4.41%), while in terms of the number of documents, it is in 12th position. South Korea is in 11th place with 717 citations, while South Korea is in 8th place in getting the number of documents. Belgium, with 997 citations (5.56%), is in 7th place, while the number of documents is in 13th.

Other countries such as the UK with 1,789 citations (8.14%) ranked 3rd, and the acquisition of the number of documents ranked 3rd also under the USA and China, Hong Kong with 713 citations (3.97%) ranked 3rd to -12th and 8th in the number of documents, Sweden with 651 citations (3.63%) ranked 14th, and the number of documents ranked 14th, and Germany with 620 citations (3.46%) ranked 15th and the acquisition of the number of documents was ranked 4th -15. Conditions in these countries show a position that is directly proportional to the number of citations obtained with the number of documents produced.

An interesting fact is that most of the results of the bibliometric analysis studies in the field of ports and their policies in terms of the most productive countries are China and the United States, which always lead in 2. And the most extreme is shown by Belgium, which has few documents, namely 38 documents (3.15%) were ranked 13th, but the number of Belgians' citations accounted for 557 (5.56%) was ranked 6th. Thus, journals in China as a whole have a higher impact than journals in America or any other country.

In the Scopus dataset, you can also find journals that accept posts about Ports and Port policies, as shown in Figure 10:

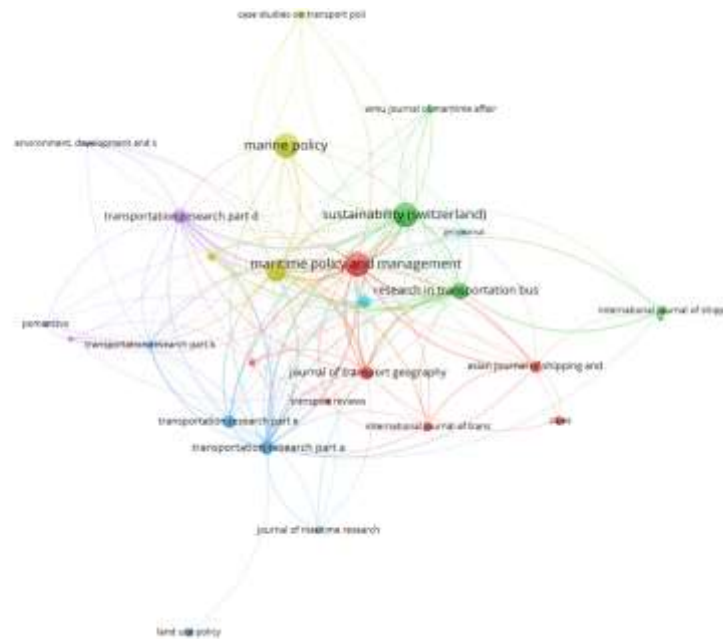


Figure 10. Ranking of Journals Based on Quotations

To clarify Figure 10, the following table presents the ranking of 15 Scopus Indexed Journals Based on the Number of Documents.

Table 4 Ranking the Top 15 Journals Based on Documents

Verify selected sources				
Selected	Source	Documents ▼	Citations	Total link strength
☒	marine policy	87	972	37
☒	sustainability (switzerland)	86	790	98
☒	maritime policy and management	83	1219	165
☒	transport policy	55	1002	172
☒	research in transportation business a...	37	773	98
☒	transportation research part a: policy...	29	723	94
☒	transportation research part d: trans...	29	786	84
☒	journal of transport geography	25	632	85
☒	maritime economics and logistics	22	348	36
☒	transportation research part e: logisti...	21	476	44
☒	asian journal of shipping and logistics	18	261	34
☒	cities	13	218	4
☒	international journal of transport eco...	13	58	24
☒	maritime business review	13	117	23
☒	international journal of shipping and...	11	71	12

Journal of Marine Policy ranks highest in receiving documents related to port keywords and policies. There were 87 documents (16, 95%) of all (513 documents). Sustainability (Switzerland) ranks second with 86 documents (16.76%), followed by Maritime Policy and Management with 83 documents (16.17%). The average number of citations obtained is about 34 documents. The interesting thing about the Journal of Maritime Policy and Management regarding the number of documents is that it is in the 3rd position. However, from the number of journals cited, it ranks first, as illustrated in the table 3:

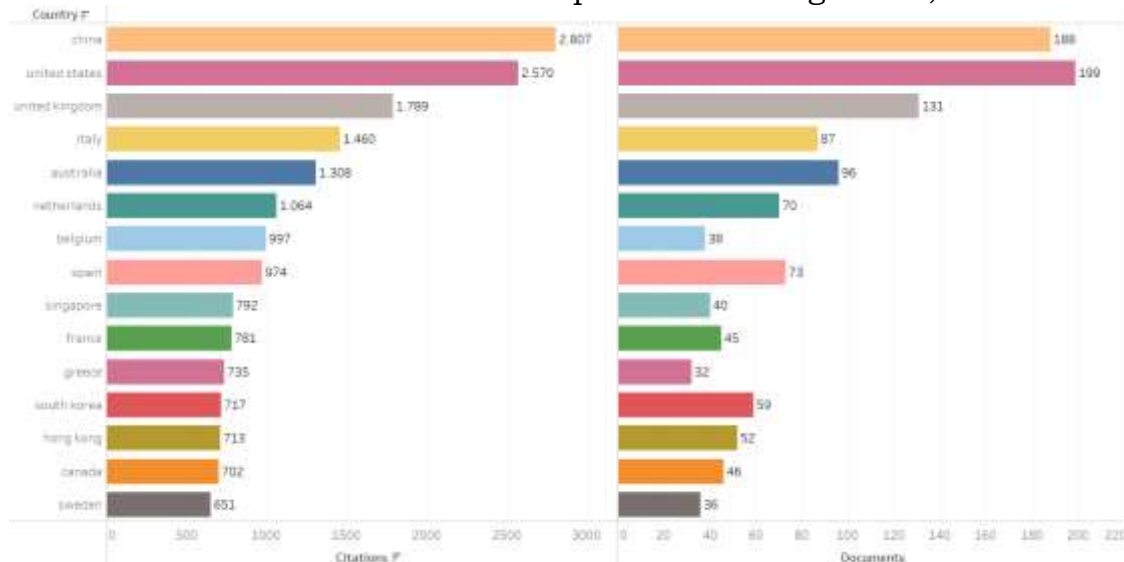
Table 5. Top 15 Journals Based on Number of Quotations.

 Verify selected sources

Selected	Source	Documents	Citations ▼	Total link strength
☒	maritime policy and management	83	1219	165
☒	transport policy	55	1002	172
☒	marine policy	87	972	37
☒	sustainability (switzerland)	86	790	98
☒	transportation research part d: trans...	29	786	84
☒	research in transportation business a...	37	773	98
☒	transportation research part a: policy...	29	723	94
☒	journal of transport geography	25	632	85
☒	transportation research part e: logisti...	21	476	44
☒	maritime economics and logistics	22	348	36
☒	asian journal of shipping and logistics	18	261	34
☒	cities	13	218	4
☒	transportation research part b: meth...	9	218	18
☒	land use policy	11	150	1

Maritime Policy and Management occupy the first rank of journals based on citations with a total of 1291 citations (16.86%) of a total of 7,655 citations in the top 15 journal rankings, then ranks journal transportation policies occupy 2 and 3 with 1002 citations (13.09%), and Journal of Marine Policy with 972 citations (14.39%). The average number of citations from the journal is 450 citations. This means that the Transportation Research journal, with a total of 476 has a range of positions based on citations and the number of document receipts.

Other information in this study is indicated by country by the number of documents and citations presented in Figure 11,

**Figure 11. Top 15 Countries Based on Number of Quotations.**

China ranks highest in terms of the number of citations, with 2,807 citations (8.09%). This is possible considering that China has the highest business interests related to import-export activities, which are ranked the highest in the world. Then the 2nd position was occupied by the USA with 2,570 citations (7.41%). The United States' leadership influences the number of documents and citations in the port countries

of East Asia. The US has interests related to regional security (83). The safety factor cannot be separated from trade competition. American government policy considers competition to drive changes in port governance and strategic decision-making (53). The port policy is a determining factor in the context of economic development in all American states (84). England occupies the 3rd position with 2,570 citations (7.41%). One of the contributing factors is that England is the oldest international port. Besides China, other Asian countries listed based on documents and citations are Singapore with 40 documents (1.57%) and 792 citations (2.28%) and Hong Kong with 52 papers (2.21%) and 713 citations (2.06%). Factors that may influence Singapore are the center of the strongest sea port demarcation and Hong Kong as the busiest port city.

CONCLUSION

This the bibliometric analysis aims to identify the dominant factors that influence port management policies in various countries, show and analyze the influence of the interrelationships of keywords with each other, as well as to describe the development of research published in Scopus journals based on the number of articles, authors, countries, research areas and the most cited port theme. It can be concluded that the dominant factors that influence port management policies based on node size are ports, sustainability, governance, and policies. The influence of the relationship between these keywords can be seen from the thick line connecting the keywords, namely from port to governance, from ports to sustainable development, sustainability-to-port policies, and maritime policy sustainability. Thus the sustainability keyword becomes the dominant link to other keywords. Based on the keyword knots, it shows that the development of research published in the Scopus journal in a decade (2013-2021) has increased, especially in 2021. However, the downward trend is seen from the beginning to the middle of 2022, which is expected to decline at the end of 2022. This condition is influenced by the post-Covid pandemic, which requires recovery of the situation. From the search results, the port policy has not been much touched on in research.

The objective analysis was conducted appropriately. However, there are some limitations to this study. First, we only use the Scopus dataset. Other database sources, such as the Web of Sciences, need to be taken into account to find broader conclusions if we combine these two sources. Second, the bibliometric analysis in this study only provides a macroscopic view of research trends on port policy topics. However, it can still be useful information for researchers and policymakers worldwide to find their research interests. Research results can be elaborated on or provide information on new research gaps related to port policy.

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