Port Management in the Collaborative Governance Perspective

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Abstract. Ports are facilities used to load and unload goods, manage ships, and support trade activities. Port development triggers economic growth and infrastructure development, which has a positive impact on local communities. The main problems in port management are the increasing demands for sustainability and environmental protection. Ports are logistics centers that connect sea transportation with land and air transportation modes, which support the flow of goods, capital, and labor. The article aims to explain and complement previous research on port management from a collaborative governance perspective. This study was a review of relevant literature. It used Publish or Perish (PoP) software to find significant articles and conducted an article selection process to determine relevant articles. In this study, we examined 21 previous papers related to our topic. The results of this research show that port management is still limited from a collaborative governance perspective in various countries. This article provides opportunities for further research using a collaborative governance perspective in port management, which refers to Agranoff and McGuire's theory, Ratner's theory, and Emerson's theory.

Keywords: port management, collaborative governance**,** sustainable collaboration

1 Introduction

Ports play a key role in supporting economic growth in island countries. Geographically, an archipelagic country is a country consisting of a large number of islands spread across the sea. It covers many countries around the world, such as Indonesia, the Philippines, and the Caribbean Islands. In island countries, ports have a very important role in supporting the economy and infrastructure development. Ports are gateways for international trade and connectivity that enable the country to participate in the global economy. A port is a facility used to load, unload, and ship cargo, as well as to dock and maintain ships. The port also functions as a distribution and storage center for goods. [1] explain that ports are the central point in the logistics supply chain that connects various modes of transportation, such as land and sea.

The port is the main gateway for international trade in the island nation. Goods are exported and imported between countries through ports. The existence of ports allows efficient export and import of goods, which generates income and economic growth. Ports act as an important element in connecting island countries with global markets. Research by [2] emphasizes that ports are vital links in global trade. [3] stated that efficient ports support

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growing international trade. Ports also play a central role in improving connectivity and mobility in island nations. The existence of ports supports the exchange of people, goods, and ideas and facilitates access to other economic and cultural centers. Research by [4] emphasizes that ports are the main means of creating regional and global connectivity. Ports connect countries and international markets, enabling the movement of goods, capital, and labor. Research by [5] notes that ports play an important role in improving global connectivity. Ports have a positive impact on economic growth. Ports create direct and indirect jobs, support industry, and facilitate foreign investment. According to research by [1], port development triggers economic growth and infrastructure development. According to research by [6], a developed port is a driver of strong economic growth. According to research by [7], ports impact economic growth and job creation. Several countries in the world have become developed countries because they have successfully utilized their ports, such as Singapore, the Netherlands and China [4]

According to [8], Singapore is known as an important world trade center. The port of Singapore has a strategic geographical location at a major maritime traffic junction, and the country has developed a sophisticated logistics infrastructure. As explained by [8], Singapore has succeeded in managing its seaport by integrating sea, land, and air transportation systems, as well as offering efficient logistics services. According to [9], the port of Rotterdam in the Netherlands is one of the largest ports in Europe and is the main distribution center on mainland Europe. This port continues to be improved and expanded to support international trade. Research results from [9] note that the Netherlands has been successful in developing modern and efficient port infrastructure. According to [4], China has experienced rapid growth in the management of its seaports. Shanghai Port, Shenzhen Port, and Ningbo-Zhoushan Port are some examples of ports in China that have succeeded in attracting investment and supporting international trade. Research by [4] shows that China has become a leader in the development of port infrastructure and maritime connectivity.

The success of Singapore, the Netherlands, and China shows the importance of modern infrastructure, pro-business policies, and multimodal connectivity in managing ports. One of the keys to the success of Singapore, the Netherlands, and China is involving all parties in managing their ports, which cannot be separated from the many challenges they face. Some of the challenges in port management for island countries are environmental issues, disaster resilience, and sea traffic management. Port development must go hand in hand with wise environmental management. Ports can have negative impacts on ecosystems and natural resources, necessitating the need for conservation measures, as explained in research by [10]. According to [11], Island nations are often vulnerable to natural disasters, and ports must be designed to remain operational in emergencies. The study by [11] highlighted the importance of developing ports that are resilient to disasters. According to [12], in improving connectivity, managing traffic around ports is important. Research by [12] highlights the importance of efficient traffic management.

The success of Singapore, the Netherlands, and China provides valuable lessons for other countries who want to maximize the potential of their ports in supporting economic growth and global connectivity by involving all parties. Port management is a complex challenge and requires cooperation between the various parties involved. Collaborative governance is an approach that encourages active collaboration between government, business actors, and civil society in managing ports. This approach includes various parties, such as port authorities, shipping companies, port workers, local communities, and environmental organizations.

Stakeholders are included in the decision-making process through collaborative governance, which also encourages candid communication and looks for agreement to accomplish shared objectives. In order to develop or carry out public policies and oversee public programs or assets, one or more public institutions directly involve non-state stakeholders in a formal, consensus-oriented, and deliberative collective decision-making process. This is known as collaborative governance [13]. According to [14], In order to accomplish public objectives, collaborative governance is a framework, procedure, and policy management that incorporates the public and private sectors in addition to the government. Conceptually speaking, collaborative governance is a novel type of governance procedure that entails the various stakeholders in cooperative relationships with one another through frequent communication and engagement in the pursuit of shared objectives [15]. Collaborative governance's primary function is to motivate all parties involved to accomplish shared objectives using a range of resources to foster creative thinking via collaboration and negotiation [15]. Collaborative governance allows various stakeholders to contribute to decision-making regarding port management. By involving diverse perspectives, the resulting decisions tend to be more balanced and consider various aspects. Collaboration between the parties involved can result in more efficient port management. This can reduce bureaucracy, speed up responses to market changes, and reduce the potential for conflict. Collaborative governance also allows for stronger integration of environmental aspects in port management. This is important to meet sustainability demands and compliance with environmental regulations [16].

Limited Community participation and the government’s seriousness in maximizing port management in island countries are obstacles to the country’s progress. This research aims to describe the conditions of port management in archipelagic countries, especially developing countries, based on previous research conducted in Indonesia and other countries. The opening section of this study outlines the research challenge, and the literature review that follows explains port management ideas and collaborative governance. While the study results and discussion will summarize the findings from earlier studies carried out in different nations, the research method will describe how to find article references.

2 Literature Review

2.1 Definition of Ports

Ports are facilities used to load and unload goods, manage ships, and support trade activities [12]. As explained by [8], ports are logistics gateways that connect sea transportation with land and air transportation. According to [8], the benefits of ports in forming economic and trade relations between countries. [8] say that ports are logistics centers that connect sea transportation with land and air transportation modes, which support the flow of goods, capital, and labor. [17] emphasized the benefits of ports in local and regional economic growth. [17] stated that port development triggers economic growth and infrastructure development, which has a positive impact on local communities. Ports can be categorized based on their types. Research by [18] shows that loading-unloading ports are the main centers for cargo distribution throughout the world. Next is A shipping port, a small port usually used for boats and small ships. According to [17], shipping ports act as important refuges for small vessels and encourage local trade. Then there are industrial ports, intended to serve industry and factories. Industrial

ports generally specialize in managing heavy cargo such as coal, iron ore, and chemicals. [19] explained that industrial ports support the movement of heavy cargo and raw materials that are important for industry. According to [3], tourist ports play a role in supporting the tourism industry and providing a luxury sailing experience.

According to [20], one of the main problems in port management is the increasing demand for sustainability and environmental protection. [20] stated that ports are faced with pressure to reduce environmental impacts and comply with strict regulations regarding emissions, waste, and water quality. [21] identified climate change as a serious problem in port management. [22] explained that rising sea levels and extreme weather can disrupt port operations, threaten infrastructure, and affect port availability. According to [23], the problem of global competition in port management. [24] said that increasingly fierce competition between ports in attracting ships and cargo requires investment in competitive infrastructure, technology, and services. [18] emphasize the importance of sustainable and inclusive management. [18] explain that proper port management considers aspects of environmental, social, and economic sustainability and involves various stakeholders. According to [25], it is important to invest in modern infrastructure and technology. [25] note that successful port management involves investment in efficient facilities, sophisticated information systems, and adequate training for the workforce. [21], [26] highlights the importance of collaboration between ports and other stakeholders in the supply chain. [26] said that proper port management involves cooperation between ports and various stakeholders, including shipping, logistics companies, and the government. Commercial port operational standards, according to [8], are guidelines and procedures that regulate the daily operations of ports with the aim of ensuring security, efficiency, and service quality.

2.2 Corporate Governance

The term "governance" describes how the policy-making process has changed over the past few decades. Specifically, encouraging sensitivity in the different contexts and stakeholders engaged in public policymaking [27]. The establishment and upkeep of a set of laws that govern the public sphere through the participation of the government, civil society, and market-based entities who interact with one another is referred to as governance [14]. One of the best governance concepts for fostering mutual assistance between the functions of the state, the private sector, or business community, and society is collaborative governance, also known as collaborative government administration. In public administration literature, according to [28], collaborative governance can be viewed from three approaches, namely: 1) descriptive and explanatory approach, 2) normative approach, and 3) instrumental approach [13] define collaborative governance as a series of arrangements in which one or more public institutions directly involve non-state stakeholders in a formal, consensus-oriented, and deliberative policy-making process that aims to create or implement public policy.

Based on this definition, [13] it is formulated into several key points, including: 1) the creation of a venue or organization that serves as a medium for public institutions and the actors within them; 2) the inclusion of non-governmental actors among the group's participants; 3) the direct participation of participants in decision-making, rather than merely serving as a venue for consultation; 4) the Forum's formal management and regular, structured meetings; and 5) the

forum's goal of reaching consensus. [14] defines collaborative governance as a framework and procedure for public policy, decision-making, and management that incorporates the public, private sector, government levels, public entities, and the community. [25] also describe several barriers to collaboration, such as different formal rules, informal norms, and different resources from various stakeholders. [19] several factors that influence relationships in the context of collaboration, namely 1) commitment from each collaborating member or actor, 2) actors' perceptions and values towards the content and context of collaboration, 3) application of agreed rules and regulations, 4) the relative strength of the collaborating members or actors, 5) the impact of the political/cultural context in which the collaboration occurs.

3 Method

This research adopted a descriptive analysis method, and the data used was obtained from previous literature studies. Primary data sources were obtained through Scopus and Proquest, with the use of the Publish or Perish (PoP) application to collect relevant literature. PoP was applied using the term "port management and collaborative governance" and searching 367 previous research publications that had been indexed in Scopus and Proquest from 2020 to 2023. The author's decision to choose Scopus and Proquest as data sources was based on the comprehensiveness of this database and its popularity. Apart from that, in an effort to produce relevant narratives and conclusions, the author processes data obtained from Publish or Perish, which is accessed via the PoP website with the stages of identification, screening, eligibility, and included. At the identification stage, the author identified all 367 articles obtained from Scopus and Proquest. At the screening stage, the author sorted out articles that had similarities with other articles to obtain 324 articles. At this stage, the author also adjusted to the abstract criteria that had been determined by the researcher, namely discussing specifically port management and collaborative governance in waste handling, so 113 articles were obtained. In the eligibility stage, the author reviewed the substance of each article and obtained 43 eligible articles. Based on these 43 articles, the researchers continued their review of the theory, methods, results, and discussion sections of each article, resulting in 21 articles that were worthy of review. Each stage of the method used in determining relevant articles is shown in Figure 1. This research aims to investigate port management in developing countries, with the main aim of developing existing research concepts and expanding their scope. Through this approach, research will explore conceptual understanding by developing basic questions regarding previous research findings related to port management. It is hoped that the findings of this research can provide a valuable initial contribution to port management.

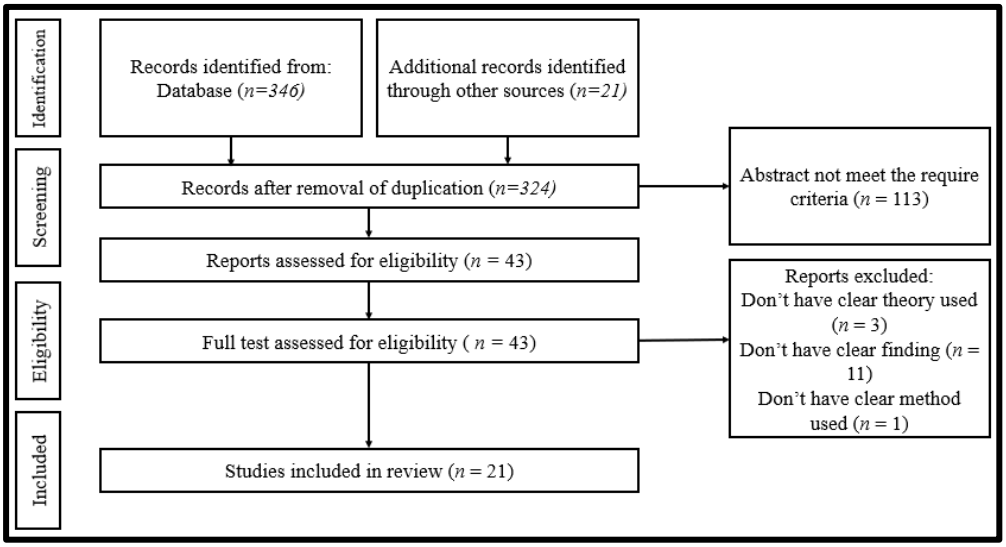

Figure 1. Search Strategy and Study Selection Process

4 Results and Discussion

Based on the method used, 21 articles were found and used to write this article. The 21 articles appear in Table 1, and their findings are described in detail.

Table 1: Resume of Twenty-one Articles

No	Author and Year of Study	Research Results
1	[29]	The research results show that the three main domains that are classified are smart port operation, smart port environment/energy, and smart port safety/security.
2	[24]	The research results show that the success of ports in their process of becoming more sustainable depends on how port employees utilize driving forces and reduce obstacles.
3	[30]	The research results show that port productivity is viewed from the efficiency of ship movements (unloading/loading cargo) and the release of containers from port facilities.
4	[31]	The research results show that the solution to overcome the governance problems of the Brazilian Ports Authority remains in the hands of the Federal Government by (1) eliminating control through bureaucracy, (2) preventing the influence of political parties in public ports and (3) decentralizing port management by the chief executive officer appointed by the Port Authority Board.

No	Author and Year of Study	Research Results
5	[32]	The research results show that finance is the most important evaluation criterion, followed by port environmental policy, technology and stakeholders. Among the three ports compared, Kaohsiung Port was chosen as the best port, followed by Keelung Port and Taichung Port
6	[33]	The research results show that ports that adopt integrative strategies into their supply chains can improve cost and operational efficiency, financial situation and investment, while offering high-quality services to their customers
7	[34]	The research results show that containers are the most important criterion while Mersin port has the best performance
8	[35]	The research results show extensive use of social media by European PMBs to reach a wider range of stakeholders.
9	[36]	The research results show that the field of port performance evaluation is based on greenness and intelligence components. Port evaluation plays an important role in its commercial success
10	[37]	The research results show that PSQ is a construct of 4 factors and 16 items, and increasing PSQ will have a positive impact on customer satisfaction.
11	[38]	The research results show that the development of multimodal container transportation is an effective way to reduce the carbon footprint.
12	[23]	The research results show that it is verified by comparing the differences in port legislation between the two. It turns out that the private sector is more involved in port operations in Taiwan compared to Spain
13	[39]	The research results indicate that the structural associations of the DPSIR framework have the possibility of providing substantial insights regarding the identification of the most influential factors regarding the development of environmentally friendly port governance models.
14	[40]	The research results show that the comparison between Indian and international ports is based on identified indicators.
15	[41]	The research results show that the development of a sustainable and more fluid approach to the port governance model and exploring new revenue/business models for authority harbor.
16	[42]	The research results show that the port of Klaipeda is the most diversified port in the eastern Baltic Sea region, considering that the port does not have a single most important type of cargo.
17	[43]	The research results show that based on the hybrid system of state-owned and private enterprises in Shenzhen port, Zhuhai port needs to introduce global strategic partners for in-depth cooperation and innovation.

No	Author and Year of Study	Research Results
18	[44]	The research results show that Japanese companies are continuously entering the overseas port operations market.
19	[45]	The research results show that to avoid partial assessments, the use of a comprehensive framework is essential in assessing the environmental and economic performance of ports jointly.
20	[46]	The research results show that increasing privatization in port governance will increase the implementation of GPM practices.
21	[47]	The research results show that the port industry in this region is currently just starting its sustainability path.

Research conducted by [29] intends to use the Eastern Economic Corridor (EEC) in Thailand as a case study to identify SPIs and create a conceptual model of smart port performance. This data was examined using content analysis in order to create a conceptual modeling strategy. Smart port operation, smart port environment/energy, and smart port safety/security are the three primary, categorised domains in which the study findings are displayed. Research conducted by [24] aims to provide insight into how ports are coping with the forces and pressures of sustainability change. Top-level directors and sustainability managers from ports in the European maritime zone participated in twelve semi-structured interviews. These results demonstrate how ports' ability to harness motivating factors and lower obstacles will determine how successful their efforts to become more sustainable are.

Research conducted by [30] aims to analyze port productivity in terms of the efficiency of ship movements and the release of containers from port facilities. Quality Function Deployment (QFD) and benchmarking analysis are used to compare the productivity of three ports in order to identify tactics that would help boost output. The research's conclusions have developed an analytical approach that makes it possible to examine the port's point of sale. Research conducted by [31] aims to assess the management model of Port Authorities in Brazil from 1993 to 2020 and considers the port governance models in Australia, the UK, and Antwerp as benchmarks. The methodological strategy used in this study is two-step, combining desk research and field research techniques. The findings indicate that the Federal Government still has the power to address the Brazilian Ports Authority's governance issues by 1) removing bureaucratic control, 2) limiting political parties' influence in public ports, and 3) decentralizing port management through the chief executive officer chosen by the Port Authority Board [31].

Research conducted by [32] intends to rank the relative importance of important factors evaluating port environmental protection and choosing Taiwan's top ports using the fuzzy analytical hierarchy method (FAHP). According to the study's findings, the most crucial evaluation factor is money, which is followed by stakeholders, technology, and port environmental policy. Kaohsiung Port was chosen as the best port out of the three that were compared, followed by Keelung Port and Taichung Port [32]. Research conducted by [33] intends to conduct an empirical investigation on how PSCI affects the environmental and economic pillars of port sustainability. According to the study's findings, ports can enhance their financial status, investment, and operational and cost efficiency while providing their clients with top-notch services by implementing integrative tactics into their supply chains.

Research conducted by [34] intends to use a multi-criteria decision-making (MCDM) approach to assess the performance of ports that have been privatized. The outcomes of the TOPSIS, ARAS, and entropy approaches were contrasted. These findings indicate that "container" is the most crucial factor, and Mersin port performs the best [34]. Research conducted by [35] aims to examine recent developments regarding the adoption of the most popular social media by European port management bodies (PMB). Then, this report provides an in-depth case study of the Port of Rotterdam's use of Twitter for CSR communications. Finally, content analysis was carried out on tweets published in the 2017-2019 period. Empirical results show extensive use of social media by European PMBs to reach a wider range of stakeholders [35].

Research conducted by [36] aims to develop and evaluate ports playing an important role in their commercial success. More than 90% of heavy goods transportation in the world is currently carried out by sea. In addition, the environment is being polluted by the usage of port equipment, oil spills from marine accidents, ship crew negligence, unclean diesel substation fuel, and ship fuel gases at sea, particularly in ports. and put human lives in peril [35]. Research conducted by [37] intends to look at the idea of port service quality (PSQ) and how it affects customer satisfaction in Vietnam's container port industry. According to the study's findings, PSQ is a construct made up of 16 components and 4 factors. Improving PSQ will boost customer satisfaction, with the biggest effects being shown in port service performance and image [37].

Research conducted by [38] demonstrates that promoting the growth of multimodal container transportation is a practical strategy for lowering carbon emissions. We developed a container multimodal transportation measurement model and a synergy degree evaluation index system based on synergy theory and case studies by conducting in-depth interviews and analyzing academic literature and policy documents [38]. Research conducted by [23] intends to investigate the potential effects of different port governance from port authorities on smart port development initiatives. By contrasting the variations in port laws between the two, the findings of the aforementioned investigation are further confirmed. It turns out that Taiwan has a higher level of private sector involvement in port operations than Spain [38].

Research conducted by [39] In order to fill in the gaps that have been discovered, this study carried out a bibliometric analysis of 278 scholarly works concerning the idea of environmentally friendly port governance that is presently emerging in the marine sector. The DPSIR framework's structural associations' causal relationships may offer significant insights into determining the most important elements influencing the creation of green port governance models and self-assessment instruments [38]. Research conducted by [40] aims to address the need to identify factors that contribute to the strategic development of ports to build a competitive position globally. The findings of this study are useful for port stakeholders because they can identify indicators of strategic port development in the form of community development, promotion, and technology, as well as information dissemination [40].

Research conducted by [41] intends to offer a critical evaluation of a number of important topics and themes in port governance research while simultaneously suggesting fresh directions for port research in the years after COVID-19. Specifically, this study offers suggestions for 1) creating a more flexible and sustainable approach to port governance models, 2) addressing each port's governance issues with greater strength and regional focus, 3) investigating the circumstances and effects of greater port participation on a regional and global scale and the

ensuing governance solutions, 4) improving performance measurement in the field of port governance, and 5) investigating new revenue/business models for authorities [41]. Research conducted by [42] sought to examine the subject of ports and discovered that no analysis comparing more than two ports had been done. A comparative analysis of ports in the eastern Baltic Sea shows that the port of Klaipeda is the most diversified in the eastern Baltic Sea region, considering that it does not have a single most important type of cargo. St. Petersburg handles the largest volume of cargo of the general type. The distribution of cargo flows in the Visotsky Port is best correlated with the selected parameters, which allows us to state that the infrastructure of this port is used to the maximum [42].

The research conducted by [43] is based on the corporate governance structure theory of economist Williamson, who won the Nobel Prize. In order to validate the measurement model and analysis scientifically, it gathers pertinent data from important ports in the Asia-Pacific area. Lastly, this study presents Zhuhai Port's strategy using Zhuhai Port as the primary empirical analysis. Based on Shenzhen Port's hybrid system of state-owned and private businesses, Zhuhai Port must bring in international strategic partners for close collaboration and innovation. Zhuhai Port needs to interact with neighboring ports in the Greater Bay Area in a complimentary way [43]. Research conducted by [44] intends to investigate the potential for Japanese businesses to enter international port operations markets in a sustainable manner. In particular, we examine Japanese port governance, the features of the Japanese market in the global market, and the level of engagement of local terminal operators both domestically and internationally. [44] gives guidance for the future on how to improve the entrance environment and expand entry opportunities. The research carried out by [45] intends to assess port environmental management systems at 24 Italian ports in 2016 using a multi-step approach based on official data. The results of this study show that using a comprehensive framework is crucial when evaluating ports' economic and environmental performance together in order to prevent partial assessments. When ports have a strong pro-environmental mindset and execute proactive, environmentally friendly regulations, efficiency reaches optimal targets. This is an intriguing finding for managers and politicians [45].

Research conducted by [46] examined the best port governance model to use when putting environmentally friendly port management (GPM) techniques into effect. In order to identify suitable port governance models for GPM, the study contrasts the Analytical Network Process (ANP) approach with the recently created Best-Worst Method (BWM) in the examination of MCDM problems. Researchers discovered that the adoption of GPM practices will rise as port governance becomes more privatized [46]. Research conducted by [47] intends to theoretically create a framework for sustainable governance in order to comprehend how corporate sustainability initiatives may help the port industry achieve its larger corporate objectives. The findings indicate that the region's port sector is just beginning its journey toward sustainability. While the sector has made significant progress in integrating environmental governance and general good governance standards, there is still a lack of stakeholder participation and understanding, including the disclosure of sustainability performance [47]. Based on the twenty-one previous studies reviewed in this article, it was found that port management with a collaborative governance perspective is still limited. Apart from that, several similar studies are still limited to the use of Ansell and Gash theory in collaborative studies on integrated waste management using the Penta helix concept. This article provides opportunities for further

research using a collaborative governance perspective in training management, which refers to Agranoff and McGuire's theory [48].

5 Conclusion, Limitations, and Suggestions

The results of this research provide an empirical explanation of the importance of managing ports from a collaborative governance perspective in various countries. Due to the limitations of previous studies, which only used 21 articles as references about managing ports from a collaborative governance perspective. This article provides opportunities for further research using a collaborative governance perspective in port management, which refers to Agranoff and McGuire's theory, Ratner's theory, and Emerson's theory. In the future, it is hoped that more in-depth research will be carried out on port management using qualitative, quantitative, and mixed research methodologies. This is especially important for developing countries like Indonesia. The authors recognize that these findings cannot be interpolated to all countries based on what was found in this particular study.

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