

# Container Ports' Performance and Logistics Costs: A Case Study in Indonesia

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## Abstract

Container ports play a significant role in the supply chain, but their poor performance has an impact on the logistics costs at ports. Organizations seek to gain cost advantages by reducing their logistics costs, which consist of their transportation, inventory, and administrative costs. Logistics costs are the result of logistics activities from upstream to downstream. However, there is very little literature investigating the impact of container ports' performance on logistics costs on the manufacturer's side, and for the logistics service provider (LSP). To fill this gap, this paper used the resources dependence theory (RDT) and stakeholder theory to investigate the root causes and impact of problems at ports on the logistical costs perceived by port operators, producers, and the LSPs. To capture the real problem at the ports and the consequences for logistics costs, this paper used a case study approach. This paper drew the conclusion that loading and unloading activities at a container port cause the high transportation, inventory, and administrative costs. Inefficient supply chain activities trigger logistics costs, so that supply chain integration is the key to reducing these logistics costs.

## Keywords

Logistics cost, Container ports' performance, Resources Dependence Theory, Stakeholder Theory

## 1. Introduction

In developed countries, there is a tendency to have excellent logistics performance because their port performance is of a better quality and in a greater quantity, compared to developing countries which have higher uncertainty and low of port performance (World Bank, 2018). Indonesia is categorized as a developing country that is also an

archipelago, connected by ports spread across the various islands. This means the ports are vital pieces of infrastructure as they are the entrance and exit points for the flow of raw materials and finished products. Therefore, the container ports' performance is the key to the country's competitiveness, which has implications for the supply chain networks and logistics performance (Nugroho et al., 2016). Practically, Indonesia has a weak logistical performance, compared to other ASEAN countries such as Singapore, Malaysia, Thailand, and Vietnam (World Bank, 2018). These problems require solutions so that organizations in the supply chain network have certainty in the upstream and downstream processes. The port is the central place for export and import activities, and domestic trade, and influences both the upstream and downstream operations, so bottlenecks at a container ports result in higher logistics costs (Cho, 2014; Jafar, 2019). A World Bank (2015) report explains that logistics costs consist of transportation, inventory, and administrative costs. Transportation costs relate to the inbound and outbound transportation activities, carried out by a logistics service provider (LSP). Then, inventory and administrative expenses are related to the activities of the manufacturer.

There is some research that has investigated the effect of container ports' performance on logistics costs. Cho (2014) investigated the relationship between uncertainty and logistical costs at a port. Ascencio et al. (2014) designed a supply chain system for ports to reduce the logistics costs. Then, Hämäläinen et al. (2017) analyzed the impact of logistics costs on export activities. However, the literature (Ascencio et al., 2014; Cho, 2014; Hämäläinen et al., 2017) is still focused on logistics costs on the ports' side. Practically, all activities at a container port involve the LSPs and port operators, at a minimum. The problem of poor port performance on logistical costs cannot be partially understood, so it needs to be viewed from other stakeholders' positions, such as manufacturers (Jiang et al., 2018). The perception of the manufacturers is needed because they are the service users at a port who are directly affected if there is a problem at the port (Senarak, 2020). According to the previous explanation, there is shortcoming research that examined the effect of port performance and logistics cost from stakeholders' perspectives. Hence, in this paper, we seek to fill the research gap, investigating the effect of port performance on logistics cost from the standpoint of the manufacturer, the LSP, and the port operator. This explanation is in accordance with the view of the resource dependence theory (RDT) and stakeholder theory, which both assume that there is an interdependent relationship between stakeholders (Harrison et al. 2010; Savage et al., 2010). Referring to the RDT, operating activities at a port cannot abandon the role of other stakeholders because obstacles in certain process chains result in logistical activities being disturbed in sequences (Denktas-Sakar and Karatas-Cetin, 2012); while the stakeholder theory's view is that the logistics activities at a port are influenced by the behavior of the stakeholders connected to the port's supply chain (Yuen et al., 2017). Thus, we argue that the RDT's point of view can be integrated with that of the stakeholder theory, with the proposition that an organization needs to collaborate with other stakeholders to get better logistical performance.

## 1.1 Objectives

According to this preliminary explanation, this study aims to analyse the impact of container ports' performance on logistics costs, based on the perspective of the manufacturer, the LSP, and the port operator. Manufacturers were examined to get an overview of their inventory and administrative costs. Meanwhile, the LSP was examined to get an explanation of transportation costs. Furthermore, the port operator was investigated to get a deeper understanding of the port's operations and bottlenecks. Theoretically, this paper contributes to the integration of the RDT and stakeholder theory to investigate the impact of container ports' performance on high logistics costs.

## 2. Literature Review

### 2.1 Resource Dependence Theory

The RDT assumes that the viability of an organization is determined by the organization's ability to respond to environmental uncertainty (Pfeffer and Salancik, 1978). The strategy needed to respond to an environmental uncertainty is through collaboration with a supply chain (Wang et al, 2018). The dynamics of the external environment make the organization vulnerable to threats that interfere with the organization's operations (Teo et al., 2018). In addition, limited resources make it clear that organizations need to obtain and utilize resources from external parties (Frączkiewicz-Wronka and Karolina, 2012). This strategy will make the organization focus on its most significant strengths, which can then be exploited to gain a competitive advantage (Drees and Heugens, 2013). Collaboration decisions are based on the reality that a mutual relationship between organizations is needed. In the supply chain system, there is no actor who fully controls all the conditions, based on the ideal expectations to achieve the goal (Ahlqvist et al., 2020).

Supply chain collaboration becomes an organizational mechanism for obtaining process certainty by jointly planning and evaluating activities. Referring to the RDT theory, it is assumed that manufacturers are limited by variables that cannot be directly controlled (Chu et al., 2019). Manufacturers are in social relationships with other supply chain actors, so collaboration is a way for them to improve their control over activities which involve suppliers, LSPs, and customers (Perdana et al., 2019). The RDT assumptions can be used to explain the phenomenon of logistical activities in ports that involve many stakeholders. Each stakeholder plays a role, operationally, and no one takes any opportunistic actions because of the awareness of the interdependent relations. From the RDT's view, the seamless activity at a port is determined by the alignment of the processes from inbound to outbound, and vice-versa (Denktas-Sakar and Karatas-Cetin, 2012). The greater the harmony that exists between the stakeholders means that each chain of activities can be planned, implemented, and evaluated optimally, which increases the logistics performance at the port (Song and Panayides, 2008).

## 2.2 Stakeholder Theory

The stakeholder theory believes that the value creation process is connected with the activities carried out by other stakeholders. The connectedness of activities between stakeholders indicates that there are traits that influence and are influenced (Parmar et al., 2010). The term stakeholder can be defined as a number of organizations that undertake an activity together, which has an impact on each organization (Mainardes et al., 2011). The stakeholder theory perceives that each organization must manage its relationships with other stakeholders to minimize the potential threats that can obstruct their operational activities (Graham, 2017). Donaldson and Walsh (2015) argue that performance is not due to the results of the abilities of one stakeholder but to the collective work of all the stakeholders. The stakeholder theory highlights that business success is determined by an organization's ability to respond to change with the right strategy (Crane, 2018).

In the current era of openness and disruption, there are no independent stakeholders. Thus, interwoven relations between stakeholders are built on the principle of mutual benefit (Busch et al., 2018). Relationships that are built on trust between an organization and its stakeholders can produce an improved performance (Berman and Johnson-Cramer, 2017; Schaltegger et al., 2017). Barney and Harrison (2018) argue that the stakeholder theory provides the perspective that superior organizations are produced collectively through mutual relations with stakeholders, which ultimately become a source of competitive advantage. With this assumption, stakeholders can share complementary resources so as to improve the ability of their organizations to deal with environmental changes (Retolaza et al., 2014; de Gooyert et al., 2017). Practically, the stakeholder theory's viewpoint can be used to understand the behavior of the actors at the ports. The idea behind the stakeholder theory is that there are aspects of externalities from other organizations that affect performance (Lechler et al., 2020). The streamlined logistical activities are determined by the performance of each stakeholder. Moreover, it can be assumed that there is an interdependent relationship. Referring to the perspective of the stakeholders, each obstacle must be identified and the solution sought to create added value in the supply chain (Cummings and Patel, 2009; Parola and Maugeri, 2013).

## 2.3 Container Port Performance

Contextually, the supply chain system will intersect with activities at the container port, since it is the entry point for raw materials and for the distribution of the finished products (Cho, 2014). The container port is a piece of transportation infrastructure that supports export-import and transshipment activities (Woo et al., 2013; Minken and Johansen, 2019). Poor container ports' performance results in ineffective and inefficient logistical activities (Munim and Schramm, 2018). This condition requires the debottlenecking of the container ports. Bottlenecks can occur due to variability in the demand for goods, and such things as uncertainty in shipping schedules and the disruption of landside functions. They causes port operations to become less than optimal (Tran et al., 2011). Therefore, this condition requires attention to find solutions, or anticipatory steps, so that container ports can run effectively and efficiently, thus reducing the logistics costs. Referring to the supply chain management (SCM) point of view, logistics costs cannot be identified only with the loading and unloading activities at the container port, but also need to be analyzed in the supply chain network (Seo et al., 2015). Collaboration between the stakeholders involved in logistical activities at a port has an impact on the increased performance for shipping goods in terms of time, cost, flexibility, response, and reliability (Lee, 2019).

Effective and efficient logistical performance is the key for a country to create a competitive advantage. Governments have an important role in creating logistics systems that are able to ensure the optimal supply chain activities from upstream and downstream (Cai et al., 2010). The policies and rules of the government are

instrumental tools for creating harmonious business activities. This instrument is translated in the form of government support to ensure activities at the ports take place effectively and efficiently (Beysenbaev and Dus, 2020). Logistics performance is the result of various components in each port. The appearance of a disturbance at certain points during the activities at the port can produce inbound and outbound logistics process barriers (Loh and Thai, 2015). Given the complexity of the activities at ports, it is necessary to integrate the process between stakeholders, as an instrument of control and evaluation, so that a more efficient and value-added process is obtained, including efficiency in the logistics' costs (Han, 2018). Recently, ports have become not just berths for loading and unloading, but also the providers of value-added logistics services such as packaging, inventory, and technology (Le et al., 2019). Connectivity between ports and the hinterland is an absolute requirement so that distribution activities take place effectively and efficiently (Fahmiasari and Parikesit, 2017; Munim, 2020). Logistics performance at a port is determined by the ability of the port to manage its inbound and outbound logistics flows (Duru et al., 2020). The more effective and efficient management of logistics activities will result in lower logistics costs (Tongzon et al., 2009; Cho, 2014).

## 2.4 Logistics Costs

Production costs are a concern for every business organization. Different approaches are used by companies to reduce their production costs. One component of the production costs that makes a significant contribution is logistics costs (Stępień et al., 2016). These costs represent a company's expenses for its inventory, administration, and transportation activities (World Bank, 2015). Therefore, an organization will try to reduce its logistics costs to gain competitiveness. Logistics costs arise because of the company's activities (Binshan, 2001). The competitive advantage of this cost aspect can be obtained if the organization eliminates its non-value-added activities (Askarany et al., 2010). Costs, from the SCM viewpoint, are created starting with the procurement process through to the distribution to end customers. There are interrelating relationships in this process that increase costs (Christopher and Gattorna, 2005; Schulze et al., 2012). SCM focuses on value-added activities that provide benefits for each process in the supply chain (Krumwiede and Charles, 2014). The era of globalization means that competition is no longer between organizations, but between the supply chains of organizations. An organization's supply chain, in general, consists of suppliers, manufacturers, distributors, retailers, and end customers (Li et al., 2006). Each entity has a process uncertainty, so efficient creation requires collaboration across the organization in the supply chain network, to reduce uncertainty (van Donk and van der Vaart, 2005). On the upstream side, organizations are faced with uncertainty about the availability of raw materials, of the right quality, in sufficient quantities, and at the right price (Govindan et al., 2017). Then, in the manufacturing process, there are internal uncertainties such as forecasting, inventory management, and scheduling. Furthermore, on the downstream side, there is the uncertainty of the distribution process to the end customers. Cost advantages will only be achieved if all the supply chain's member networks have lean, efficient processes (Flynn et al., 2016).

The SCM's view is that organizational goals can be achieved through coordination, collaboration, and the integration of internal/external processes and activities. This perspective emphasizes risk-sharing and mutually beneficial relationships (Ellram and Murfield, 2019). Operationally, SCM is interpreted as planning, coordination, control, and performance measurement among the supply chain's entities. Organizations included in the supply chain network must realize that there are interrelated processes that influence them (Giunipero et al., 2008). From the perspective of SCM, organizations gain a competitive advantage through the acquisition and utilization of internal and external resources (Yuen and Thai, 2016). These resources become the organization's capital to improve performance, including reducing its logistics costs. Manufacturers try to minimize activities that do not add value, to reduce their logistics costs. A lean system is needed to allow producers to forecast and schedule accurately and optimize their inventory control (Erik, 2017). The principle of SCM is the optimization of the procurement, production, distribution, and consumption processes of a product, in an exact quantity, of a defined quality, on-time, and on-price. This process involves the various activities of each organization in the supply chain network that incur costs (Archie, 2003). Therefore, it is necessary to identify the policies, systems, and activities that cause costs. The purpose of this process is to find non-value added activities that incur costs so that the organization can control its costs (Drew, 2004).

## 3. Methods

Stakeholders can be interpreted broadly as individuals, groups, organizations, suppliers, customers, governments, and other actors that affect an organization (Harrison et al., 2010). This term is used to determine the respondents in this paper, who consist of producers, LSPs, and port operators. These respondents are a proxy for investigating the

impact of container ports' performance on logistics costs. To answer the purpose of this paper, we conducted in-depth interviews and analysis using a case study approach. The advantage of the case study approach is its ability to systematically capture how a social phenomenon can occur and how this phenomenon impacts on other entities (Stuart et al., 2002; Seuring, 2008). Accordingly, we chose a case study approach to reveal, in-depth, the root causes of a port's performance and its effects on transportation, inventory and administration costs. The implementation of the data's collection process was carried out with caution, because it is not easy to get answers from respondents regarding facts about costs. From the aspect of the validity of the interview guidelines and the interpretation of the results, we conducted a focus group discussion (FGD) three times. The participants of the FGD were producers, LSPs, port operators, and personnel from the Ministry of Transportation. The first FGD was held to discuss the protocols for the interviews, while the second FGD was to deliver the data's results. The final FGD was carried out for the dissemination of the framework of the relationship between container ports' performance and logistics costs.

As explained in the previous description, the interviews took place after the first FGD. The interviews were conducted at four major ports in Indonesia, namely Belawan Port, Tanjung Priok Port, Tanjung Perak Port, and Makassar Port. These ports represent the scope of typical port services in Indonesia. Belawan Port is the entrance/exit point for trade in the Island of Sumatra. Next, Tanjung Priok Port is the entrance/exit point for trade undertaken in the provinces of Jakarta, Banten and West Java. Furthermore, the Port of Tanjung Perak is a port that serves the trade conducted in the provinces of East Java, Central Java, and Yogyakarta. Lastly, Makassar Port is the hub for trade in eastern Indonesia. The number of respondents who were willing to be interviewed came to 16 people, consisting of four representatives from the ports' operators, five from LSPs, and seven from manufacturing companies (Electronic, Textile, Cement, Food and Beverage, Coal, Palm oil, and Copra). Data were collected through interviews conducted from July to September 2019. The keywords proposed in the interviews were: (1) the business process carried out; (2) problems encountered; (3) logistics costs incurred, which included transportation, inventory, and administrative costs; and (4) the relationship between problems at the container port and logistics costs. Next, the results of each interview were transcribed and analyzed, so they could be discussed during the second FGD meeting. For the last, the results of the discussion in the second FGD were formulated to create a conceptual framework. This framework was then discussed in the last FGD. A description of the conceptual framework is contained in Section 4.

## **4. Results and Discussion**

### **4.1 Results**

In this paper, we attempt to understand what the real issues are, why these can occur at container ports, and the effect they have on logistics costs. Therefore, it is necessary to capture the big picture of how ports function by involving stakeholders from the port operators, LSPs, and goods' manufacturers. In this section, the results of the interviews and the analysis, and the synthesis of the logistical costs are explained. The following are the findings about bottlenecks and their effect on the ports' performance and logistics costs:

- a. There are limitations on the capacity of the infrastructure and equipment, such as cranes, for loading and unloading at container ports. This means ships sometimes have to wait before loading or unloading. Trucks that are on the dock also have to wait to move containers onto a ship. This can mean the container yard fills up, so trucks have to queue outside the container port, which causes traffic jams. However, the problem of the availability of space in the container yards cannot be resolved quickly, due to the limited availability of finances and land. Barriers to the process of loading and unloading result in increased logistical costs, especially transportation costs. As shown in Table 1, from the interview results and analysis of the financial statement, transportation costs have a proportion of more than 80% for almost all respondents. The companies must pay additional fees (surcharges) for transportation costs, which consists of warehousing, demurrage, trucking, and container handling fees. Accordingly, the LSP imposes additional costs on the owners of the goods (the manufacturers); it increases the inventory and administrative costs. Moreover, the interview results indicate that the behavior of some manufacturers does not help, as they prefer to send their products to the ports rather than store them at their factories, due to limited warehouse capacity. As a result, the container yards at the ports rapidly fill, which creates an imbalance between the number of containers loaded or unloaded and the container yards.

Table 1. Proposition of logistics costs

Company	Transportation Costs	Inventory Costs	Administration Costs
Electronic	83%	12%	4%
Textile	88%	10%	2%
Cement	96%	3%	1%
Food and Beverage	83%	11%	6%
Coal	89%	9%	1%
Palm oil	69%	25%	6%
Copra	62%	32%	6%

- b. The problem of the poor capacity and quality of the roads that connect the container ports and the hinterland areas. This condition means trucks are unable to drive at a constant speed. In addition, congestion along the roads to the ports, and vice versa, also hampers the movement of trucks, so that their speed decreases.
- c. The lack of collaboration or information sharing about trading activities between manufacturers, customers, and the LSPs. The characteristics of the existing trade are transactional, so there is often an imbalance between the volume of cargo unloaded and loaded. It is known that the LSPs carry the goods unloaded at a port to their customers, but frequently do not carry any goods when returning to the container port (empty backload) and vice versa. This means the LSPs impose round-trip transportation costs on customers, so that the logistics costs increase.
- d. The tracking and tracing systems for goods are still limited, usually only using a Short Message Service or a telephone call. It is difficult to control the movement of goods anyway, so this situation increases the uncertainty. In addition, there is the problem that not all the stakeholders at the container ports operate 24 hours a day, so that loading and unloading activities are delayed and have an impact on the logistics costs.
- e. The loading and unloading activities at the ports need to be aligned with the policy of the Ministry of Transportation and customs officials (Ministry of Finance). In fact, there are policies that are not aligned. For example, not all the institution's systems are integrated into a single customs clearance issuance system. Other problems include importers or exporters, the LSPs, and banks have not implemented 24 hours a day/7 days a week services. The lack of coordination among stakeholders in the ports delays the process of inbound and outbound logistical activities, resulting in greater logistical costs. The explanation is that when the process time is delayed, the LSP must pay the additional cost of transportation and demurrage, and they then pass these additional costs onto the manufacturers.

Based on the findings of this paper, it can be illustrated that there is a relationship between the performance of container ports and logistics costs. The way to think of the effect of the ports' performance on logistics costs is shown in Figure 1.

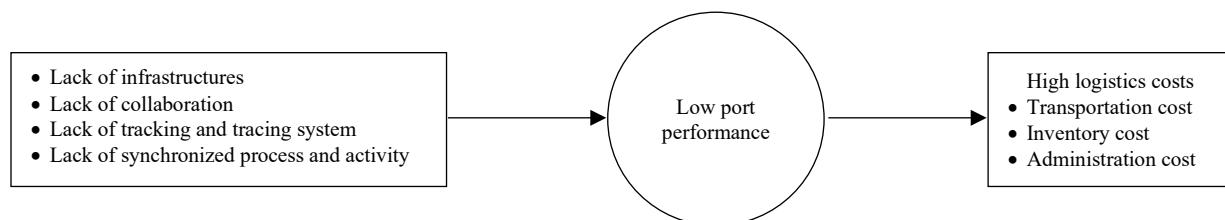


Figure 1 . Relationship between port performance and logistics costs

The findings as illustrated in Figure 1 indicate that bottlenecks at the port have an impact on the logistics costs. The high logistics costs are felt to have a significant impact on manufacturers, so they must be prepared to pay additional costs for inventory, transportation, and administration. Other results show that there is a lack of infrastructure and a lack of harmony between the supply chain's actors. Meanwhile, there are variables that cannot be controlled by the manufacturers; for example, barriers to the procurement process involve loading and unloading and customs at the ports, which the manufacturer cannot intervene in to solve the problems at the port. These obstacles require solutions from policy makers that have authority over the ports, such as the Ministry of Transportation, the port operators, and customs officials (Ministry of Finance). Other results show that control over the logistical costs cannot only rely on

the stakeholders at the organizational level in the supply chain network; there is a role for the Government of Indonesia (GoI) through the Ministry of Transportation and/or the Ministry of Finance to provide certainty in the process of the export, import and distribution of goods, so that the logistics costs do not become excessive. Hence, this paper undertakes to offer thoughts on the supply chain's integration so that the GoI has a role in supporting the alignment of the processes that have an impact on the efficiency of logistics costs.

From the perspective of SCM, we believe that there are no existing stakeholders that have full control over the process from upstream to downstream. Therefore, integration becomes a necessity for every stakeholder or organization in the supply chain. We underline that organizations have limited resources, which is in accordance with the resources dependence and the stakeholder theories' views. Both theories assume that no organization has unlimited resources, therefore every organization needs to establish mutual relationships with other stakeholders to get complementary resources. The connection with the findings of this paper is expected to encourage stakeholders to leave their traditional perspective which states that all activities can be carried out independently. The traditional mindset makes logistical activities ineffective and inefficient, as the asymmetry in the views, processes, and activities between stakeholders provides a space for conflict, which results in the poor performance of the supply chain (Stevens and Johnson, 2016). The thinking behind SCM emphasizes integration; organizational networks in the supply chain must synchronize their various decisions, such as forecasting, the management of materials at the container ports, warehousing, inventory, and transportation (Seo et al., 2015). Unsynchronized decisions can cause each entity to have inaccurate information to base their decision-making on. Errors in the decision-making process for one entity will affect other entities (Chen et al., 2017).

#### 4.2 Discussion

Grounded in the SCM view, we argue that logistics costs are derived from various activities at the governmental and organizational level. Therefore, the efficiency of logistics costs is the responsibility of all the stakeholders, as there is no single player in the logistical activities at the ports. This description is consistent with the view of the RDT (Delke, 2015) and stakeholder theory (de Gooyert et al., 2017). Referring to the RDT, this paper shows that the term "interdependence stakeholders" can be assumed to have a broader meaning in the supply chain, namely at the organizational level (micro) and cross-level (micro and macro). Interdependence at the organizational level is between the organization and other organizations, while the cross-level is between the organization and the GoI. The grounds for this explanation is the fact that the bottlenecks at container ports make it difficult for suppliers to deliver raw materials to producers, and finished products from manufacturers to customers, on time. Hu et al. (2019) argue that delays are something that manufacturers try very hard to avoid because they cause them additional costs. The distribution process is carried out by the LSP and of course, there are additional costs for any delays, which are charged by the LSP to the manufacturers, as the owners of the goods (Vargas et al., 2018). Meanwhile, the manufacturers do not want to bear the loss, so they impose additional costs on their customers. Barriers that occur in each activity cause a chain of consequences that are felt by suppliers, manufacturers, LSPs, and customers (Vu et al., 2020). This condition shows the influence of container ports' performance on logistical activities upstream and downstream (Woo et al., 2011). Logistics costs are derived from those activities, so the more inefficient the activities are, the higher the logistics costs will be. A bottleneck at a container port worsens the supply chain's performance (Han, 2018). Thus, we assume that efficient port performance contributes to creating more efficient processes for the stakeholders in the supply chain's network. Based on this description, we propose the following propositions:

**P1. A bottleneck in a container port causes suppliers, manufacturers, LSPs, and customers to incur additional costs, resulting in higher logistics costs.**

**P2. The more efficient a port's performance is, the more efficient the logistics costs will be in the supply chain's network.**

The findings in this paper point out that logistics costs are not only influenced by activities at the organizational level, but also influenced by policies issued by the GoI. A review of the results of the research in this paper is that organizations have a limited ability to manage all the logistical activities at a port. There is a role for the GoI through policy instruments that have an influence on all the supply chain's stakeholders. The process of shipping goods through a port, which is hampered due to the lack of loading and unloading infrastructure, requires assistance from the GoI. This assistance can be in the form of the construction of better infrastructure, which is coordinated in advance with the needs of the stakeholders at the port, such as the operators, LSP, and customs (Tijan et al., 2019).

In addition, the needs of the suppliers and manufacturers also require formulating, so that the GoI sees the big picture of the required infrastructure. The results of the interviews in this paper show that the stakeholders need a logistics infrastructure that they can all use together, to become more efficient. Referring to Yavas and Ozkan-Ozen (2020), this logistics infrastructure can be in the form of warehouse logistics centers that offer value-added services for suppliers, manufacturers, LSPs, and customers. Examples of these value-added services include vendor inventory management, warehousing, technology support, cross-docking, packaging, and customs (Notteboom et al., 2017). Hence, we argue that the construction of the loading and unloading infrastructure and warehouse logistics centers is a solution and provides useful added value to improve the performance of the ports. We emphasize that the role of the GoI cannot be neglected in the supply chain. But on the other hand, the role of the GoI in the supply chain system is still limited in the literature and discussions about supply chains and logistics. Summarizing, problems at the ports cannot be solved by the stakeholders at the organizational level, but only with help from the GoI. From the RDT and stakeholder theory, we believe that efficient logistics performance requires supply chain integration from the organizational (micro) and governmental (macro) levels. Hence, we formulate the following proposition:

**P3. Logistics cost efficiency at container ports can be obtained by integration between the supply chain network on the micro-level (organizations) and the macro-level (the GoI).**

## 5. Conclusions

This study was undertaken to fill a gap in the limited research that investigates the impact of container ports' performance on logistics costs, on the producers' and the LSPs' sides using the RDT and the stakeholder theory. Both theories underline that collaborations can make it easier for organizations to achieve their desired goals, with consideration of the limited resources, and need for support and resources from other organizations or stakeholders. The utilization of resources from other organizations is based on the assumption that the relationship between the organizations is a relationship with the goal of mutual benefits. This view explains that there are externalities that affect a port's performance. Activities at a port involve many entities with asymmetric levels of importance, which causes complexities. Of course, this condition drives conflict that needs to be managed properly so as not to interfere with the port's activities. The level of importance naturally has the same goal, which is economic profit. Therefore, rather than being in conflict, the stakeholders should collaborate. We stress an important point that organizations need to leave behind their narrow perspective on managing a business. This view refers to the situation that businesses actually have a goal, which is to satisfy all their stakeholders, so that this shows that the stakeholders are in an interconnected system.

This paper indicates that the poor loading and unloading performance at container ports increases the logistics costs. This condition means that the organization must pay additional costs, resulting in higher logistics costs. The results of this study indicate that environmental uncertainty in the upstream and downstream supply chains must be controlled. However, an organization cannot fully control the system; it requires intervention by the GoI in the form of policies. The GoI has a role in helping to provide certainty for the business actors with their inbound and outbound logistics activities. In addition, the GoI needs to provide certainty about exports and imports. Moreover, the results of this paper stress the importance of manufacturers being in harmony with their suppliers, LSPs, and customers. Nevertheless, this paper is still limited to investigating the effect of the ports' performance on logistics costs, based on the perceptions of manufacturers and LSPs. Even though it requires a lot of effort, future studies can involve suppliers, manufacturers, LSPs, customers, port operators, and the GoI to get a real picture of the supply chain in the relationship between the performance of container ports and logistics costs.

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