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Analysis Change Import Through Shift-Share, Location Quotient and BCG Techniques: Tanjung Priok Port

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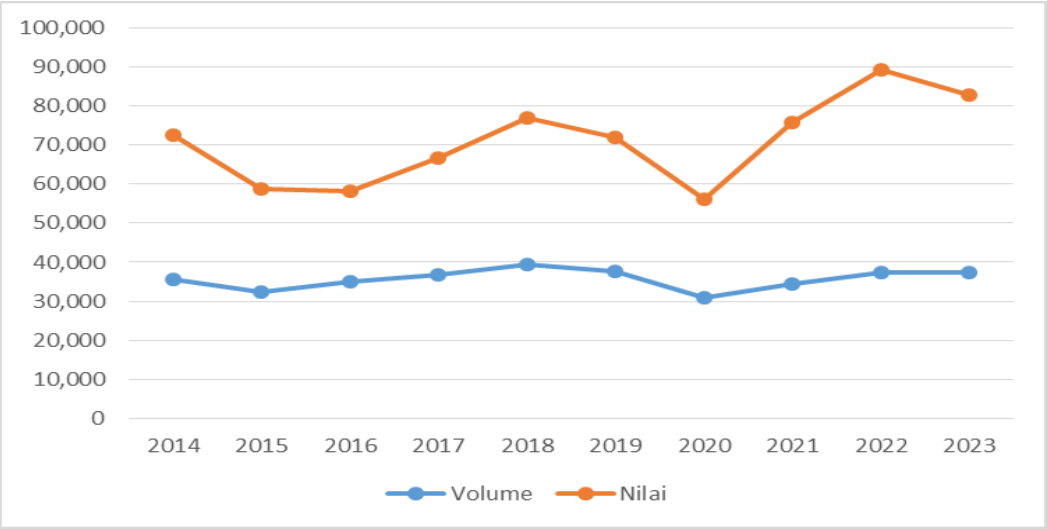
Abstract

The purpose of this study is to comprehensively analyse the changes in the competitiveness and specialisation of Tanjung Priok Port with a comparison of ports in Indonesia. This study uses shift-share analysis, location quotient, and BCG techniques. The results of the analysis show that the effects of regional shifts negatively impact the mineral, iron and steel fuel sectors, as well as machinery and electrical equipment, but positively on other finished textile goods. Tanjung Priok Port has experienced an increase in regional competitiveness and industrial advantages, especially for finished textile goods. By incorporating the location coefficient into the BCG matrix, this study shows that the Port of Tanjung Priok maintains its position in the import of finished textiles, iron and steel, machinery and electrical equipment and its parts in the Star category. However, mineral fuels have been degraded and remain in the Emerging category.

INTRODUCTION

Activities economy Wrong is the only one that happens in every harbour in Indonesia. Tanjung Priok Port is the busiest in Indonesia port This is the harbour, which is becoming the centre activity of inter-country trade located in Tanjung Priok, North Jakarta. Functioning as the centre main demolish load goods export -import and accommodate the flow of goods in large quantity, efficiency chain logistics a country and Power the competition in trading very influenced by performance harbour (Bai et al., 2022) . Competitiveness refers to the ability of a country or region to compete in the international market. Countries or regions that can create the right products will be able to survive in the global market. The level of company competitiveness reflects the company's ability to create products that are superior to its competitors. High competitiveness is the main factor that must be prioritised in development planning. (Prabowo, 2023) . The success of economic development can be measured through economic growth, which will show the real impact of development policies. (Alfiyana et al., 2024) . Economic growth reflects positive progress in an economy, which results in increased production of goods and services and public welfare (Sulistiawati, 2012) in (Susilo et al., 2023) . Sustainable economic growth reflects good economic performance, in line with the government's main goal of achieving positive annual economic growth. Figure 1. shows that Tanjung Priok Port recorded a compound average growth rate of 17.839% from $72.616 million in 2014 to $82.894 million in 2023 in value terms. And its imports increased from 35.678 million tons to 37.298 million tons in volume terms, with a CAGR of 0.5%. In addition, in the same period, the standard deviation of the annual growth rate for import volume of 2.55 is more than three times that of import volume.

Figure 1. Graph of Import Growth at Tanjung Priok Port



Source: BPS, 2023

We can look at the years 2014-2016 change. Imports at Tanjung Priok Port experienced a decline, and this occurred again in 2018-2020 due to the COVID-19 pandemic, This impact on international trade and the global economy caused a decline in imports triggered by the closure port, lack of power Work from action quarantine has hinder efficiency chain supply and cause market. instability (Menhat et al., 2021), (Xu et al., 2021) in (Nguyen & Kim, 2024). In addition, understanding factors that influence change structure import is very important For getting a better understanding of dynamics trading. (Hong Nga et al., 2024). Economic inequality, influenced by labour productivity (Mussini, 2019), has complex factors that shape endogenous economic geography and the influence of technology. (Behrens & Robert-Nicoud, 2009) in (Ruault & Schaeffer, 2020). This can be a complex issue related to changes in economic structure and activities in various regions, thereby exacerbating regional disparities.

On the other hand, in 2023, the import growth rate also decreased, although in the previous year, it reached its highest point. Indonesia's imports throughout 2023 reached USD 221.89 billion, down around 6.55% (yoy) compared to 2022. The largest contributor to the slowdown in imports was electrical machinery or equipment and its parts, while mechanical machinery and equipment and its parts contributed to the increase in imports (Larasati, 2024). In addition, the decrease in import volume was also caused by the frequent dwelling time at the port. The prolonged waiting period for goods results in increased logistics costs, decreased competitiveness of imported commodities, and an overall reduced number of incoming goods. Based on the Indonesia National Single Window (INSW) Dashboard as of May 9, 2023, the dwelling time of Tanjung Priok Port in May 2023 reached 4.24 days. Conditions This is an increase compared to April 2023, which was recorded at 2.77 days. (Editorial, 2023).

Trading internationally can be seen through How import In a country, a country is needed to fulfil need production and consumption domestically (Alfiyana et al., 2024). Machinery and equipment electric, as well as its part, is one of the most commodities imported in Indonesia. The average growth rate of the value of imports from Tanjung Priok Port For machinery and equipment electric, as well as its share (HS 85) of 3.63%, is not different in a way with changes in import volume by 5.97%. However, the standard deviation level growth annual mark import that is 1,267 is no

different in a way significant with import volume, which is 116. This shows that imports from Tanjung Priok Port own difference big in volatility value and volume. Therefore, taking into account price and exchange rate fluctuations, volume becomes a more stable target.

The main/most imported national import commodities with 2-digit HS (Harmonized System) disaggregation in September 2024 are electrical machinery and equipment and their parts (HS 85), iron and steel (HS 72), mineral fuels (HS 27) and other finished textile goods (HS 63), in line with research (Zuhroh & Putri, 2021) the government makes processing a priority in facing the era of the 4.0 revolution with five industrial sectors such as electronics, textiles and clothing in facing this era. Based on David Ricardo's Theory of Comparative Advantage (1817) explains that countries can benefit from trade, even though they do not have an absolute advantage, by producing goods that have a relatively lower cost. Thus, even countries that are less efficient in absolute terms can still benefit from specialisation and exchange. (Iqbal Maulana et al., 2023) .

The rate of change of electrical machinery and equipment and its parts increased by 0.85 in 2015 to 1.02 in 2023, iron and steel increased by 0.93 in 2015 to 1.02 in 2023, and mineral fuels increased by 1.00 in 2015 to 1.05 in 2023, while other finished textile goods decreased by 0.93 in 2015 to 0.87 in 2023. We also see that the import volume is very diverse from various ports in Island Java, for import of machines and equipment electric, as well as its parts, Port Cilacap, Tanjung Emas Port, Tanjung Priok Port And Harbor Peacock, increased by 7.84 1.106 1.02 and 0.52 in 2019 to 2023. However, the Port Soekarno-Hatta experienced a decrease of 0.79 from 2019 to 2023.

Research conducted by (Hong Nga et al., 2024) Show Nonlinear ADRL (NADRL) analysis of mark swap plays an important role in improving export And reducing imports, but the analysis also states that although mark swap is still effective (REER) significantly affects imports, the impact against export is not significant. In the study (Nguyen & Kim, 2024) , indicator main like throughput chest pack, capacity ship, number visit boat, And duration boat anchored gives a deep understanding of development system harbour to implementation analysis network social (SNA) on connectivity And performance ports in Southeast Asia. Research from (Musadi et al., 2023) Compare the Artificial Neural Network (ANN) method and Decision Tree to predict install letter with mark Low Mean Square Error (MSE). However, the ANN method shows little results , better with a higher MSE value compared to the Decision Tree. (Mo et al., 2020) Using shift-share analysis, location quotient, and BCG matrix shows that import composition in Harbor Gwangju experienced significant change. Shift-share analysis indicates an increase in imports of natural gas and vegetable materials, while imports of coal and iron ore decreased. Gwangyang Port shows increasing competitiveness in imports of iron ore, natural gas, and vegetable materials. However, location quotient analysis in the BCG matrix shows that the port needs to improve its position in imports of coal and iron ore, although imports of natural gas and vegetables show progress.

This study combines previously existing research variables. (Mo et al., 2020), but researchers include new theories to strengthen the research results. In addition, researchers took different years, samples and locations with a focus on Tanjung Priok port, which is the main port in Indonesia. This selection is important because Tanjung Priok port has a significant role in international trade.

Originating from the necessity to understand the context above, the purpose of this study is to analyse changes in the competitiveness and level of specialisation

of Tanjung Priok Port comprehensively by comparing it to ports in Indonesia. With this, it can formulate the right strategy to strengthen Tanjung Priok Port as the main port in Indonesia. This study is expected to contribute to the development of science so that it can provide insight for policymakers, researchers and stakeholders involved.

RESEARCH METHODS

The population in this study is aimed at the observation area at Tanjung Priok Port with a focus on import changes through international trade activities, namely imports of mineral fuels, other finished textile goods, iron and steel and electrical machinery and equipment and their parts in 2014-2023 at seven ports on Java Island.

The data analysis method to measure the variables used in this study using Microsoft Excel software. To see the influence of independent variables (competitiveness and level of specialisation) on the dependent variable (import volume of Tanjung Priok Port). The analysis technique used to measure the variables in this study is:

1. Shift share shift-share analysis breaks down changes in employment (or income) in a particular region into three components: the national share component (NC), the sectoral shift component (SC), and the regional shift component (RC).

$$M_{ij}^{0} - M_{ij}^{1} = \Delta M_{ij} = NC + IC + RC = \alpha 0\ M_{ij}{}^{0} + (\alpha_1 - \alpha_0)M_{ij}^{0} + (\alpha_2 - \alpha_1)M_{ij}^{0} \quad \ldots\ldots\ldots\ldots (1)$$

M_{ij}^{0}= import volume of sector i port j in year initial ; M_{ij}^{1}= import volume of sector i port j in year last ; NC = component share national ; SC = component shift sectoral ; RC = component regional α_0Shift; = level port import growth during all over period 1-0; α_1 = rate port import growth in sector i throughout period 1-0; α_2 = rate import growth in sector i port j period 1-0

In study (Mo et al., 2020) Shift-share analysis traditional No take into account the influence region around it. Shift-share analysis overcome lack This with enter interaction between regions. This means that the success of a region can influenced by the success of the region around it. In spatial analysis, the spatial backwardness growth rate ($\widehat{\alpha_2}$) is included in the basic decomposition.

$$M_{ij}^{1} - M_{ij}^{0} = \alpha 0\ M_{ij}{}^{0} + (\widehat{\alpha_2} - \alpha_0)M_{ij}^{0} + (\alpha_2 - \widehat{\alpha_2})M_{ij}^{0} \quad \ldots\ldots\ldots\ldots (2)$$

$\widehat{\alpha_2}$= growth rate of imports in sector i of neighboring region j during the entire period 1- O

The simple effect of the second component of equation (2) :

$$(\widehat{\alpha_2} - \alpha_0)M_{ij}^{0} = (\widehat{\alpha_2} - \alpha_1)M_{ij}^{0} + (\alpha_1 - \alpha_0)M_{ij}^{0} \quad \ldots\ldots\ldots\ldots (3)$$

$$M_{ij}^{0} - M_{ij}^{1} = \alpha 0\ M_{ij}{}^{0} + (\alpha_1 - \alpha_0)M_{ij}^{0} + (\widehat{\alpha_2} - \alpha_1)M_{ij}^{0} + (\alpha_2 - \widehat{\alpha_2})M_{ij}^{0} \quad \ldots\ldots\ldots\ldots (4)$$

The third and fourth components of equation (4) can be interpreted as the measures of the regional shift effect of neighbouring countries (NNRS) and the impact of changes in neighbouring regions (RNRS) (Mo et al., 2020).

2. Location quotient: the location quotient is entered into the BCG matrix. While cousin location gives the static image of the individual ports (Mura et al., 2017) .

$$\Delta LQ_i = \frac{LQ_i^1 - LQ_i^0}{LQ_i^0} \times 100\% \quad \ldots\ldots\ldots\ldots (5)$$

ΔLQ_i= Location quotient commodity i at Tanjung Priok Port ;LQ_i^1 = Amount production commodity i at Tanjung Priok Port year beginning ; LQ_i^0= Total production commodity i at Tanjung Priok Port year-end

3. BCG technique, used to analyse the dynamics of port import specialisation by considering the influence of time and location. This technique divides the import product market into four categories: Star, Mature, Emerging and Transformation. Data is categorised in the BCG matrix so that products are divided into four equal categories. Each category has a different role in local or regional ports, thus requiring different development strategies.
   a. Star: a port with a high and positive LQ level that continues to increase, indicating a very attractive market potential. Recommended For maintain and promote activity harbour This.
   b. Mature: a port with a high LQ level but experiencing a downward trend. It is recommended to promote this port so that it can develop into a star category.
   c. Emerging: a port with a low LQ level but experiencing an increasing trend. It is recommended to maintain or promote the growth of this port so that it can become a star. If there is a decrease in LQ, this port can be moved to the transformed category.
   d. Transformation: ports with low strength levels (low LQ and Δ LQ). It is recommended to maintain ports without significant support or promote ports if they have local significance.

RESULTS AND DISCUSSION

Shift Share Analysis

Our shift-share analysis is implemented using two models, static and dynamic. The static model only compares two years, 2014 and 2023, while the dynamic model considers each year in the period 2014-2023 for its analysis.

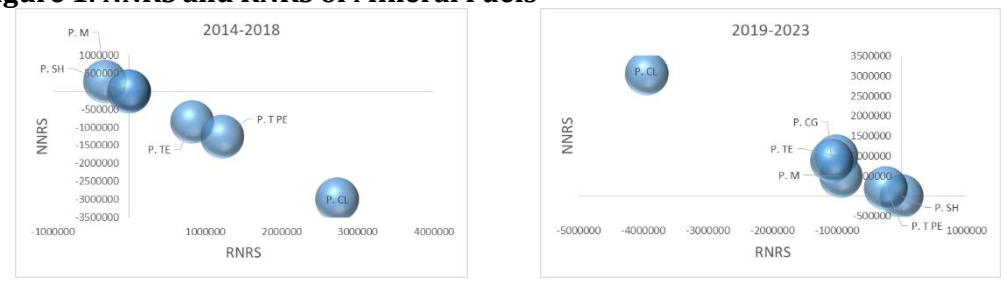
Table 1. Changes in Imports by Commodity: Mineral Fuels

		DM	NC	SC	RC
Dynamic	2015	-18	-16	-1,079	1,077
	2016	-270	127	-494	97
	2017	-324	217	-856	313
	2018	-931	259	-903	-287
	2019	-845	-201	-1,530	886
	2020	-1,269	-250	-1,014	-3
	2021	-404	647	4,720	-5,771
	2022	3,664	116	-1,209	4,757
	2023	194	305	295	-406
	2014-2018	-1,375	616	-2,728,	736
	2019-2023	869	825	418	-375
	2014-2023	-1,483,	1,291	-3,871	1,096
Static	2014-2023	-1,483	1,291	-43	-2,732

The results of the static analysis for the period 2014 to 2023 mineral fuel imports at Tanjung Priok Port were positive at 1.291 million tons, which was a sectoral shift component and a regional shift component decreased by -43 thousand tons and -2.732 million tons, respectively, so that the national component was above

the regional shift component by 1.291 billion tons. Mineral fuel imports changed from -1.375 million tons, decreasing to an increase of 869 thousand tons between the 2014-2018 period and the 2019-2023 period. However, the regional shift component also changed from an increase of 736 thousand tons to a decrease of -375 thousand tons.

Figure 1. NNRS and RNRS of Mineral Fuels



In Figure 1. which is the analysis of the results shift share spatial For import material mineral fuel, Merak Port recorded more growth than the national average in 2014-2018 and shows superiority competitive above Tanjung Priok Port. Position This changed dramatically in 2019-2023. Tanjung Priok Port not only left behind Cilacap Port, Tanjung Emas Port, Cigading Port, Merak Port and Tanjung Perak Port, which show growth high, but also Soekarno Hatta Port, which also almost follows harbour others.

Table 2. Changes in Imports by Commodity: Other Finished Textile Goods

		DM	NC	SC	RC
Dynamic	2015	-441	-34	792	-1
	2016	5	267	-1	6
	2017	5	458	675	4
	2018	-1	544	3	-5
	2019	1	-422	1	461
	2020	1	-527	1	109
	2021	9	1	58	7
	2022	481	245	-1	1
	2023	-1	642	-1	198
	2014-2018	9	1	3	4
	2019-2023	10	1	-1,	10
	2014-2023	37	2	2	32
Static	2014-2023	37	2	1	33

Table 2. shows a static analysis that during 2014-2023, import goods textile So other increase amounting to 37 thousand tons, of which the components national and components sectoral contributed to increases of 2 thousand tons and 1 thousand tons, respectively, while regional components have very big numbers which is 33 thousand tons. The sectoral shift component changed very unfavourably from positive 3 thousand tons to -1 thousand tons, while the regional shift component changed favourably from 4 thousand tons to 10 thousand tons between the 2014-2018 period and the 2019-2023 period.

Figure 2. NNRS and RNRS of Other Finished Textile Materials

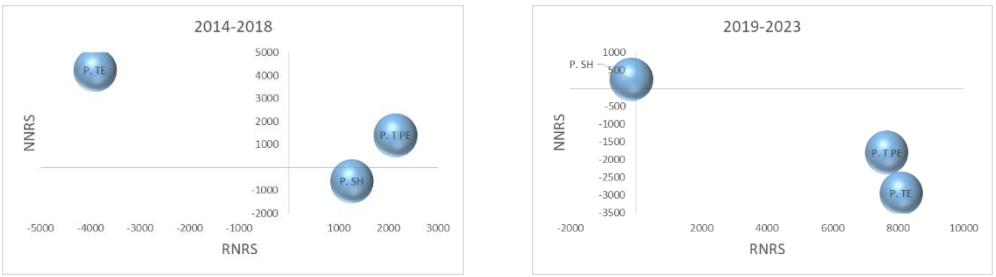


Figure 2. shows the results analysis shift share spatial For import goods textile So In addition, Tanjung Emas Port had a positive NNRS and negative RNRS in 2014-2018, and the advantages competitive over Tanjung Priok Port. On the other hand, Soekarno Hatta Port has a level more growth low than the national average and losses competitive over Tanjung Priok Port with negative NNRS and positive RNRS. However, for the 2019-2023 period, Soekarno Hatta Port reached superiority competitive on the growing Port of Tanjung Perak and Port of Tanjung Emas faster than the average port.

Table 3. Changes in Imports by Commodity: Iron and Steel

		DM	NC	SC	RC
Dynamic	2015	-423	-27	218	-613
	2016	1,053	216	450	387
	2017	454	370	-700	785
	2018	-86	440	41	-568
	2019	485	-341	1,565	-738
	2020	-2,267	-426,	-1,903	62
	2021	228	1,099	-864	-6
	2022	563	198	-482	848
	2023	101	518	554	-971
	2014-2018	954	1,047	-27	-65
	2019-2023	-1,667	1,402	-3.09	22
	2014-2023	-546	2,193	-2,083	-656
Static	2014-2023	-546	2,193	-1,451	-1,288

Table 3. Static analysis shows that during 2014-2023, iron and steel imports decreased by -546 thousand tons, of which the national component contributed 2.193 million tons, while the sectoral and regional components decreased by -1.451 million tons and -1.288 million tons, respectively.

Figure 3. NNRS and RNRS Iron and Steel

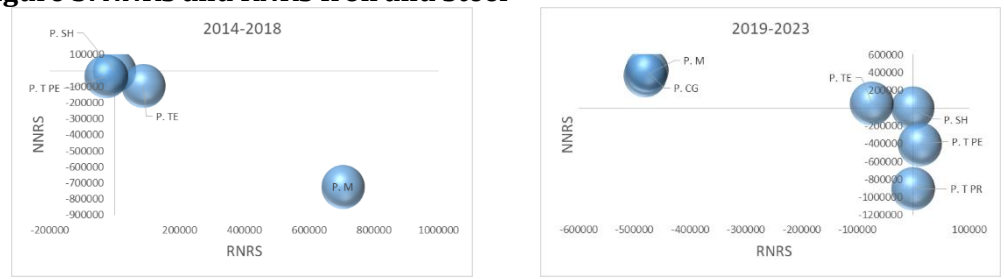


Figure 3 shows the results of the analysis of spatial share shifts for iron and steel imports. Soekarno Hatta Port, Tanjung Perak, Tanjung Emas and Merak Port had negative NNRS and positive RNRS in 2014-2018. However, for the period 2019-2023, Cigading and Merak Ports experienced significant improvements, achieving a competitive advantage over ports because the performance of Emas Port, Soekarno Hatta, Tanjung Perak, and Tanjung Priok Ports slowed down.

Table 4. Changes in Imports by Commodity: Electrical Machinery and Equipment and Their Parts

		DM	NC	SC	RC
Dynamic	2015	-72	-2	-89	18
	2016	43	15	83	-56
	2017	103,	27	53	22
	2018	76	32	37	7
	2019	-19	-25	-13	18
	2020	-53	-31	-42	19
	2021	94	81	118	-105
	2022	74	14	-45	105
	2023	10	38	-78	50
	2014-2018	145	77	69	-1
	2019-2023	121	103	-89	107
	2014-2023	271	161	-48	157
Static	2014-2023	271	161	118	-8

Table 4 shows that between 2014-2023, the import of machinery and equipment increased, amounting to 271 thousand tons, with a contribution of component national amounting to 161 thousand tons and components sectoral amounting to 118 thousand tons, while regional components recorded a number negative by -8 thousand tons. Dynamic analysis shows that the regional shift component for the same period reached 157 thousand tons, significantly different from the static analysis. In addition, the sectoral shift component experienced an unfavourable change from positive 69 thousand tons to negative -89 thousand tons, while the regional shift component shifted from a loss of -1 thousand tons to a profit of 107 thousand tons between the periods 2014-2018 and 2019-2023.

Figure 4. NNRS and RNRS Electrical Machines and Equipment and their Parts

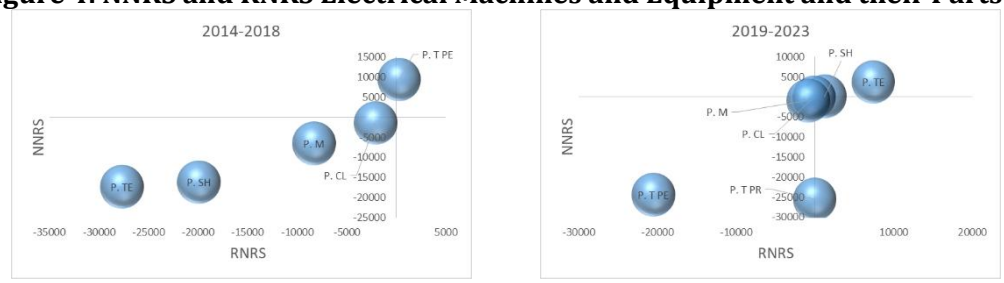


Figure 4. shows Tanjung Perak Port with positive NNRS and positive RNRS. Take notes level more growth tall than the national average as well as growth more fast compared to ports and others in 2014-2018. Ports of Tanjung Emas, Soekarno Hatta, Merak and Cilacap have negative RNRS is negative, which indicates that the level of growth is low compared to the national average. However, its superiority compared to The competitiveness of Tanjung Priok Port does not reach Tanjung Priok Port but is bigger than the Ports of Tanjung Emas, Soekarno Hatta, Merak and Cilacap.

Location Question and BCG Analysis

BCG matrix combines location quotient data, which shows the specialisation import of a country at the beginning years, with factors of time and dynamics specialisation of the country's imports, so that gives a better picture of the specialisation import a country.

Figure 5. Shift-share and Location Quotient Analysis: Mineral Fuel

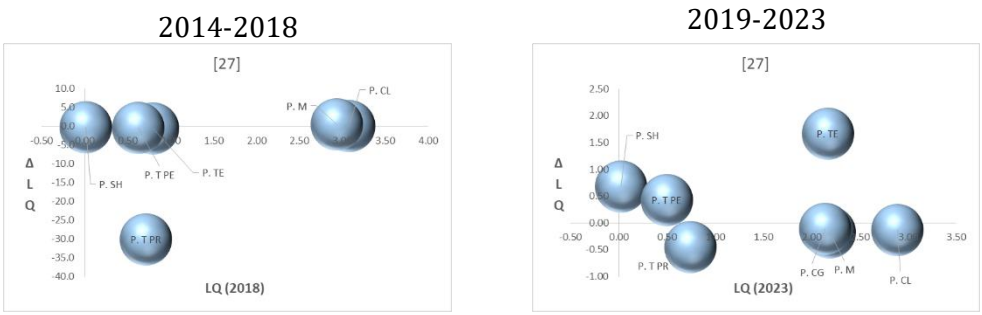
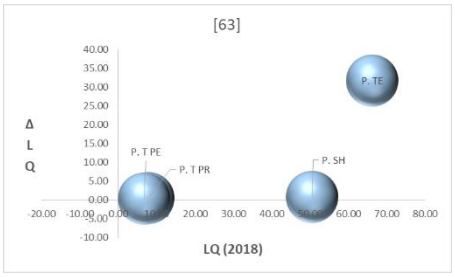


Figure 5 shows that in 2014-2018, the analysis merging location quotient into the BCG matrix for import material mineral fuel Axis vertical represent level LQ growth (%) shows that the Port of Tanjung Priok, the Port of Soekarno-Hatta, the Port of Tanjung Emas and the Port of Tanjung Perak are experiencing decrease in level growth, respectively -30.2 -0.24 -0.62 and -0.45 with positive LQ (2019) of 0.71 0.02 0.80 and 0.60. Meanwhile, Cilacap and Merak Ports experienced positive growth rates of 0.07 and 0.48, as well as LQ (2018) 3.08 and 2.94. In 2023, there was an increase in the LQ growth rate at Soekarno-Hatta Port, Tanjung Emas Port, Tanjung Perak Port and Cigading Port with values of 0.68 1.66 0.42 and -0.11 respectively, while Tanjung Priok Port remained in its position. Meanwhile, Cilacap Port and Merak Port experienced a decrease of -0.13 and -0.17.

Figure 6. Shift-share and Location Quotient Analysis: Textile Goods Other

2014-2018



2019-2023

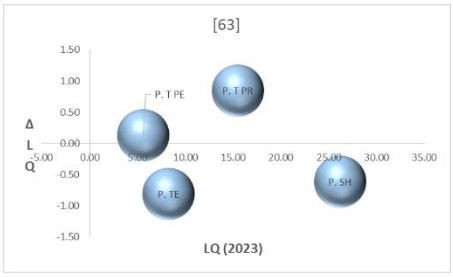
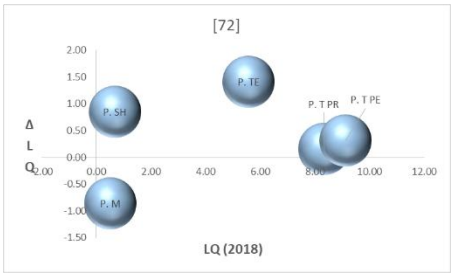


Figure 6. shows an analysis of the LQ merger in the BCG matrix for import goods, textiles and others. In 2014-2018, Tanjung Priok Port, Soekarno-Hatta Port, Tanjung Emas Port, and Tanjung Perak Port experienced improvement level LQ growth with values of 0.54, 0.72 31.76 and 0.24, respectively, as well as their LQ (2019) show number positive of 7.79 50.54 60.19, and 6.74. In 2023, Tanjung Priok Port and Tanjung Perak Port showed improvement level growth, while Soekarno-Hatta Port and Tanjung Emas Port experienced a decline of -0.61 and -081. But LQ (2018) experienced improvements to Tanjung Priok Port, Tanjung Perak Port maintains its position with value level LQ growth of 15.53 and 5.63, while Soekarno Hatta Port and Tanjung Emas Port also experienced mark positive as much as 26.22 and 8.24.

Figure 7. Shift-share and Location Quotient Analysis: Iron and Steel

2014-2018



2019-2023

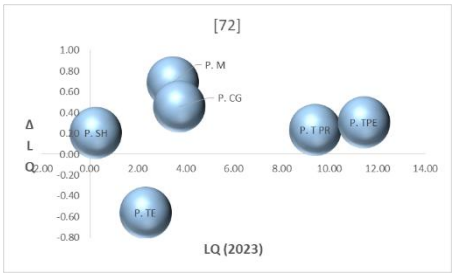


Figure 7. presents the analysis of LQ integration into the BCG matrix for iron and steel imports. In 2019, Tanjung Priok, Tanjung Emas, Soekarno Hatta, Tanjung Emas and Tanjung Perak Ports experienced an increase in growth rates with values of 0.16, 0.85, 1.41 and 0.31, while Merak Port showed a decrease in LQ growth rate of -0.86 and LQ (2018) positive 0.51. In 2023, there was an increase in the growth rate at Merak Port, with a value of 0.69, while Tanjung Emas Port experienced a decrease of -0.56.

Figure 8. Shift-share and Location Quotient Analysis: Machinery and Equipment Electric Other

2014-2018 2019-2023

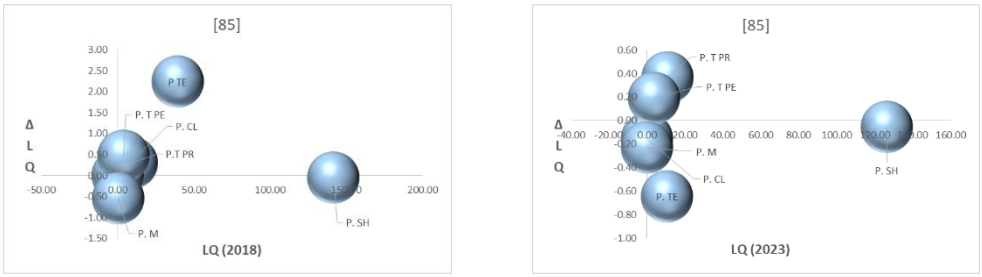


Figure 8. shows an analysis of the LQ merger in BCG matrix for import material machinery and equipment electricity. In 2014-2018, the Ports of Tanjung Priok, Tanjung Emas, Cilacap and Tanjung Perak experienced improvement level growth with values of 0.30, 2.24, 0.01, and 0.47, respectively, while Soekarno Hatta Port and Merak Port recorded growth negative of -0.05 and -0.55. Where LQ (2018) shows a positive mark for the Ports of Tanjung Priok, Soekarno Hatta, Tanjung Emas, Cilacap, Tanjung Perak, and Merak in 2023, there will be a declining level of growth in Soekarno Hatta Port and Merak Port followed by Tanjung Emas Port and Cilacap Port with values of -0.64 and -0.15. While LQ (2018) increased at Tanjung Priok, Soekarno Hatta, Tanjung Emas, Cilacap, Tanjung Perak and Merak ports with increases of 10.87, 126.32, 10.66, 0.01, 3.79 and 0.04 respectively

DISCUSSION

Import Mineral Fuel Commodities Against Import Volume of Tanjung Priok Port

In the results of the shift-share analysis of mineral fuel commodity imports, the regional shift component of the dynamic analysis for the period 2014-2023 was 1.096 million tons, much different from the static analysis. This means that regional shifts are volatile much greater than the national and sectoral components. The results of the analysis also show that for mineral fuels, the decline in imports at Tanjung Priok Port in 2019-2023 is interrelated with the competition component, most of which are negative. The data shows that regional competitiveness has the most influence on changes in mineral fuel imports at Tanjung Priok Port. In addition, we can see in the NNRS and RNRS images that the competitiveness of Soekarno Hatta, Tanjung Emas, Tanjung Perak, and Cilacap Ports does not reach the national average and lags behind Tanjung Priok Port. In 2014-2018, Tanjung Priok Port had a competitive disadvantage over Merak Port, while Tanjung Priok Port had a competitive advantage over Soekarno Hatta Port, Tanjung Emas Port, Perak Port, and Cilacap Port. It can be seen that the competitiveness of Tanjung Priok Port has experienced a very large decline in mineral fuel imports.

Import Other Finished Textile Goods Commodities On Import Volume of Tanjung Priok Port

On the results import shift-share analysis commodity goods textile So and others show that component regional shift from analysis dynamic For the 2014-2023 period amounting to 32 thousand tons, has big difference from static analysis. This means that the volatility in the regional shift component is much greater than in the

national and sectoral components. The results for other finished textile goods show that Tanjung Priok Port has experienced an increase in regional competitiveness while having a positive figure in the industrial mix. Supported by research (Yudha et al., 2024), (Roni & Hidayat, 2020), (M et al., 2024) State that in the analysis, This component regional shifts and components shift sectoral worth positive. Tanjung Emas Port shows positive NNRS and negative RNRS, indicating more growth from the national average between 2010 and 2014 and superiority competitive over Tanjung Priok Port. On the other hand, Soekarno Hatta Port experienced a level of growth lower than the national average, with negative NNRS and positive RNRS. However, in the 2019-2023 period, Soekarno Hatta Port managed to reach superiority competitive over the Ports of Tanjung Perak and Tanjung Emas, which grew faster than the average port.

Import Commodity Iron and Steel Against Import Volume of Tanjung Priok Port

Actual iron and steel imports decreased by 712 thousand tons due to negative sectoral and regional shift components, although the national and regional share effects showed an increase from 1.047 million tons to 1.402 million tons between 2014-2018 and 2019-2023. Tanjung Priok Port experienced an increase in regional competitiveness even though the sectoral component decreased. These results are supported by research. (Putri et al., 2024), (Wulandari et al., 2024) Stated that the regional shift component and the sectoral shift component were negative. The results of the study showed that Soekarno Hatta, Tanjung Perak, Tanjung Emas, and Merak Ports had lower growth rates than the national average and had a competitive advantage over Tanjung Priok Port in 2010-2014.

Imports of Electrical Machinery and Equipment Commodities and Their Shares in Import Volume at Tanjung Priok Port

The analysis results show that the regional shift component for the period 2014-2023 reached 157 thousand tons, with greater volatility compared to the national and sectoral components. Tanjung Priok Port experienced an increase in regional competitiveness despite a decline in the industrial mix. The sectoral component showed a movement in line with changes in actual imports, indicating that the sectoral structure is also a major factor in changes in imports of machinery and electrical equipment at the port. Supported by research (Maharani & Musthafa, 2024) , (Yudha et al., 2024) , (M et al., 2024) Stated that there are positive values in the regional and sectoral shift components. The study also shows that Tanjung Priok Port has a competitive advantage over all other ports. Although in second place after Tanjung Perak Port in the 2014-2018 period, Tanjung Priok became the most competitive port in the 2019-2023 period, showing a significant increase in competitiveness.

Location Quotient and BCG Analysis

Location Quotient Analysis and BCG Technique: Mineral Fuels

During 2014–2018, Tanjung Priok Port, Soekarno-Hatta Port, Tanjung Emas Port, and Tanjung Perak Port were included in the Emerging area, where the growth

rate was greater than the average (-5.2%), but their LQ (2014) was smaller than the average (1.35). Both Cilacap Port and Merak Port were in the Strar category, where not only the growth rate but also the location coefficient (2014) were above average. During 2019–2023, Soekarno-Hatta Port, Tanjung Emas Port and Tanjung Perak Port have risen to the Star category, while Tanjung Priok Port remains in its position. Conversely, Cilacap Port and Merak Port fell into the Emerging category and had to choose other items to replace mineral fuels. This finding implies that Tanjung Priok Port needs to focus on strategies to increase its market share in mineral fuel imports. This can be done by improving operational efficiency, strengthening relationships with suppliers, and seeking new opportunities in this sector.

Location Quotient Analysis and BCG Technique: Other Finished Textile Goods

During the period 2014-2018, Tanjung Priok Port, Soekarno-Hatta Port, Tanjung Emas Port, and Tanjung Perak Port were included in the Bintang area, where the average growth rate was (8.31%), with an average LQ (2014) (26.28%). During the period 2019-2023, Soekarno Hatta Port and Tanjung Emas Port failed to improve their degraded positions from Star to Emerging. This finding implies that Tanjung Priok Port must maintain its high market share and competitive advantage in textile imports by focusing on improving operational efficiency and infrastructure development, such as expanding the capacity of the dock or storage area and optimising the logistics flow or loading and unloading process. In addition, it is necessary to strengthen relationships with suppliers and customers, such as offering integrated logistics services (storage, transportation, and special handling) and expanding partnership networks with logistics companies. With this, the port will continue to increase its productivity and competitiveness so that it can drive revenue growth, market expansion, and increase revenue.

Location Quotient Analysis and BCG Technique: Iron and Steel

Iron and Steel Imports during the period 2014–2019, Tanjung Priok Port, Soekarno Hatta Port, Tanjung Emas Port and Tanjung Perak Port are included in the STAR area, where the growth rate of LQ and LQ (2014) is far in a positive value, while Merak Port is in the Emerging category. During the period 2019–2023, Merak Port and Cigading Port achieved a large-scale evolution from the Emerging category to the Star category, then Tanjung Priok Port, Soekarno Hatta Port, and Tanjung Perak Port maintained their positions in the Star category. Tanjung Emas Port was degraded from STAR to the Emerging area. It can be seen that Tanjung Priok Port has significantly increased its competitiveness for iron and steel imports. This finding implies that Tanjung Priok Port continues to improve its competitiveness in iron and steel imports by focusing on 1. infrastructure development, such as adopting advanced technology to improve efficiency, 2. optimisation of loading and unloading processes, such as developing value-added services, such as packaging, labelling, and consolidation, 3. strengthening relationships with suppliers and customers such as cooperating with the government and regulators to support infrastructure development. With this, port activities at the port will have a positive impact on the

economic growth of the surrounding area. So that it will increase employment, attract new investment, and encourage the development of business sectors around the Port.

Location Quotient Analysis and BCG Technique: Electrical Machines and Equipment and Their Parts

Imports of Machinery and Electrical Equipment during the period 2014-2018, Tanjung Priok Port, Tanjung Emas Port, Cilacap Port and Tanjung Perak Port are located in the Star area, where the average growth rate of LQ (0.40%) and its LQ (2014) is greater than the average of 32.38. Soekarno Hatta Port and Merak Port are included in the Emerging LQ category (2014) and have positive values, and LQ growth rates are lower than the average. In 2019-2023, Tanjung Priok Port and Tanjung Perak Port are highly specialised in machinery and other electrical equipment, which are in the Star category. Tanjung Emas Port and Cilacap Port are positioned Emerging with Soekarno Hatta Port and Merak Port. It can be seen that Tanjung Priok Port continues to increase imports of machinery and other electrical equipment, this shows that this port is very important for the region and is experiencing significant growth. This finding implies that Tanjung Priok Port must continue to improve its competitiveness in importing electrical machinery and equipment by utilising the momentum of high growth to increase capacity and expand service coverage. In addition, the port needs to maintain operational and service stability so as not to lose the momentum of growth. With this, the port will have a stronger position and the potential to become a regional logistics centre. So that it will increase the volume of trade and the flow of goods, attract more investors, and improve connectivity between regions.

CONCLUSION

This study analyses import changes at Tanjung Priok Port and several other ports in Java Island during the period 2014-2023. The methods used include shift-share analysis, location quotient, and BCG matrix. First, static shift-share analysis shows that the mineral fuel sector experiences a positive sectoral shift but a negative regional shift at Tanjung Priok Port, indicating a decline in competitiveness in imports in this sector. For other finished textiles, both shift components show positive results, meaning increased competitiveness and industrial growth. In contrast, the iron and steel sector experiences a negative shift both sectorally and regionally, indicating a decline in imports and competitiveness. For the machinery and electrical equipment sector, there is a positive regional shift component that contributes to significant import changes.

Second, by entering the location quotient into the BCG matrix, it was found that the import position of other finished textile goods, iron and steel, machinery and electrical equipment and their parts at Tanjung Priok Port maintained its position in the Star category. However, mineral fuels experienced degradation and remained in the Emerging category.

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