The Impact of The T-3 Sea Toll Program on Price Disparity

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Abstract

The sea toll program is to facilitate and streamline the transportation of goods through sea transportation for logistics distribution needs in archipelagic areas that do not have good transportation. The sea toll program can provide benefits not only for price stability of basic commodities but also benefits to the regional economy. The study aims to analyze the impact of sea toll benefits on price disparities. Specifically, the research was conducted in the Tarempa area of the Sea Toll Route -Route T-3. The research used quantitative method with data analysis using the Wilcoxon method. The results of data analysis show that the sea toll program for the T3 route route shows that there is a price disparity in the need for basic goods and essential materials. Data analysis from the Asymp Sig. (2-tailed) value> 0.05, namely 0.06, so H0 is accepted, where H0 there is no difference between the price before the sea toll and after the sea toll. Research conclusions based on the price of staples according to the results of the Wilcoxon test there is no difference between before the sea highway and after the sea highway.

INTRODUCTION

Indonesia is steadfast in its pursuit of becoming the world's maritime axis, guided by a development agenda anchored in five primary pillars [2],[3]. First, the nation aims to revitalize its maritime culture. Given its vast expanse of 17,000 islands, Indonesia must recognize itself as a nation whose identity, welfare, and future hinge on effective ocean management. This entails a commitment to safeguard and manage marine resources, with a particular emphasis on achieving marine food sovereignty by empowering the fishing industry, positioning fishermen as key stakeholders. The utilization of maritime resources must be optimized for the benefit of the populace. Additionally, Indonesia is focused on enhancing maritime infrastructure and connectivity, exemplified by the implementation of sea tolls, development of seaports, logistics, and the shipping industry, as well as the promotion of maritime tourism. Furthermore, Indonesia is committed to bolstering its maritime defense forces to safeguard maritime sovereignty and resources, demonstrating its responsibility in ensuring shipping safety and maritime security through the provision of high-quality services.

The deployment of freight transportation services via sea tolls, from one port to another, is facilitated through the governance of the implementation of public service obligations for freight transportation. This involves the transportation of goods, including basic necessities,

essential items, livestock, fish, and return cargo, as mandated by relevant laws and regulations, to meet the needs of communities in underdeveloped, remote, outermost, and border areas.

To efficiently execute the Public Service Obligation for the Transportation of Goods via sea, land, and air, the establishment of Logistics Centers is crucial. These centers, which can be Small and Medium Enterprises (SMEs), Industrial Estates, or Maritime Store Depots, are organized by the government or state-owned enterprises. The mechanism for fulfilling the public service obligation involves adhering to the tariff and route system set by the government and transmitting this information transnationally through the Information Management Resource Portal (IMRK).

The route network consists of feeder support networks to other ports, as well as the main route network. The authorities are obliged to provide public services for sea transportation goods. In the field of sea transportation, the state-owned enterprise is PT Pelayaran Nasional Indonesia (Persero). Sea highway construction has successfully reduced the economic gap between Western Indonesia and Eastern Indonesia. The construction of five major bridges (hubs) is subject to subsidies to ensure that the transportation of goods to developing, small, and transitional countries can be carried out without obstacles. This guarantee is recorded with Presidential Decree No. 106 of 2016. If more economic players use the Sea Highway, then those that do will benefit financially, allowing them to meet operational costs and maintain long-term logistics.

The sea highway is a comprehensive and practical instrument in addressing the problem of disparities in economic development (Guo et al., 2023; & Sameer et al., 2023). The sea highway is expected to work well in addressing the issue of income disparity between the western and eastern regions. The target reduction is related to the high cost of internal trade, which in many cases makes domestic transactions more expensive than those conducted in international trade. [6] The sea highway development policy is very important to expand the range of domestic trade in goods and services which can practically reduce regional income deviation.

Developing coastal ecosystems (sea tolls) that connect islands is a priority agenda of the government. Building sea tolls is one of the alternatives intended to generate more efficient logistics costs derived from sea freight costs. Every world shipping channel map that emerges from the strategic map. Indonesia will be used as a diplomatic tool related to Indonesia's strategic goals. The world maritime axis as the international politics of the present and future, designates Indonesia as the world maritime axis that defends the rights of the people

and prosper the people. According to maritime law, the sea highway must be protected and developed [7].

The implementation of the sea highway and its development from 2018 to 2023 has increased from 18 routes to 39 routes, with the number of ships also increasing from 19 ships to 38 ships. One of the routes that is the object of research is the Route T-3 route which serves the Tanjung Priok - Patimban - Kijang - Tarempa - Pulau Laut - Selat Lampa - Subi - Serasan - Midai - Patimban - Tanjung Priok route where one of the ports of call is Tarempa. The existence of this route will be seen as a disparity in the prices of basic necessities and essential goods around Tarempa Village, Siantan Subdistrict.

One of the sea toll programs in the eastern region is the Saumlaki area in the Tanimbar Islands Regency of Maluku Province where the Sea Toll route operations include Tanjung Perak - Saumlaki - Dobo - Tanjung Perak. This program has an impact on the price of commodities traded through the Sea Toll port of Saumlaki Port, this port also serves passenger ships, regular logistics ships, and there is also a ferry / ASDP port. Gross Regional Domestic Product (GRDP) and an overview of changes in the region's economic base using an assessment method based on the Location Quotient (LQ) indicator. The development of certain economic sectors that have developed into an economic base due to the sea toll program [8], [9].

The sea highway program has an impact on changes in the prices of basic and essential goods which are commodities that are routinely distributed to the Tanimbar Islands region. The need for basic goods has decreased in price by 8%-12% and in the type of important goods there has been a decrease in price to reach 9%-13% in the area in Saumlaki and its surroundings. The results of the calculation and analysis of LQ on the value of GRDP at current prices show that the LQ value for the Agriculture, Forestry, Fisheries sector has increased significantly from 0.84 to 0.99.

METHOD

The research uses quantitative methods that refer to Ershaghi (2023)[11]. Data analysis using the Wilcoxon method (Wu, 2024)[12]. The impact of price disparity with the sea highway route to Tarempa on basic needs and important goods is carried out by collecting data, both primary and secondary data and also conducting interviews with distributors and retailers in the Tarempa Inpres Market. Statistical tests used to process data using non-parametric statistics (Sugiyono, 2019). The test does not pay attention to any conjectures about the distribution of the population data (the distribution of the data is unknown and does not have to be normally

distributed). The method used is the Wilcoxon method.

The Wilcoxon rank test assumes that the information is in the magnitude and sign of the difference between paired observations with ordinal or interval scales but non-normally distributed data, with hypotheses for values H0 = there is no difference between 2 variables. H1 = there is a difference between 2 variables. Based on the results of the hypothesis, using the guidelines from the Wilcoxon test is if the Asymp Sig. (2-tailed) value> 0.05 then H0 is accepted, if the Asymp Sig. (2-tailed) value <0.05 then H0 is rejected.

RESULTS AND DISCUSSION
Results

In support of the sea highway program, the Ministry of Trade also enters price data for basic necessities available on the website http://geraimaritim.kemendag.go.id/ in the context of maritime outlets, where price data is based on per district, per month, and per year. To see the impact of price disparity in this study, the recapitulation results of the maritime outlet data from 2018 to 2023 as the object of research in Anambas Regency with the average price of the staples as a sample, as in Table 1 and Table 2.

Table 1. Prices of basic commodities in Anambas Regency

Basic Goods	PRICE (Rp)					
	2021		2022		2023	
Basic Goods	Sea Toll	Non Sea Toll	Sea Toll	Non Sea Toll	Sea Toll	Non Sea Toll
Medium rice (kg)	13,683	15,000	13,742	15,583	16,063	16,063
Sugar (kg)	11,100	14,083	12,367	14,833	12,975	15,625
Cooking Oil (l)	15,542	17,083	20,545	23,000	18,000	20,250
Chicken meat (kg)	36,000	38,500	38,250	41,333	37,250	41,500
Wheat Flour (kg)	8,000	10,000	9,900	12,167	12,938	15,000
cement (sak-50kg)	89,444	101,667	81,833	91,000	68,400	82,000
beef (kg)	113,750	134,167	115,000	133,000	118,333	133,333
12kg LPG	-	-	260,000	260,000	260,000	260,000

Source: Geraimaritim, processed by the author

Table 2: Prices of basic commodities in Anambas Regency

Basic Goods	PRICE (Rp)					
	2018		2019		2020	
Basic Goods	Sea Toll	Non Sea Toll	Sea Toll	Non Sea Toll	Sea Toll	Non Sea Toll
Medium rice (kg)	13,875	15,500	13,975	14,550	13,033	15,500
Sugar (kg)	12,850	13,500	11,491	13,273	12,064	15,000
Cooking Oil (l)	68,000	78,000	30,000	33,429	13,600	15,600
Chicken meat (kg)	33,750	36,750	35,818	38,909	32,273	35,636
Wheat Flour (kg)	8,000	8,250	7,900	9,409	7,708	10,000
cement (sak-50kg)	85,000	85,000	86,250	86,875	89,000	90,000
beef (kg)	-	-	97,500	118,000	107,500	122,917
12kg LPG	-	-	190,000	220,000	-	-

Source: Geraimaritim, processed by the author

Graphically for the price of rice and wheat flour from the maritime outlet data as in Figure 1 and Figure 2, the price of sea toll goods is cheaper for non sea toll.
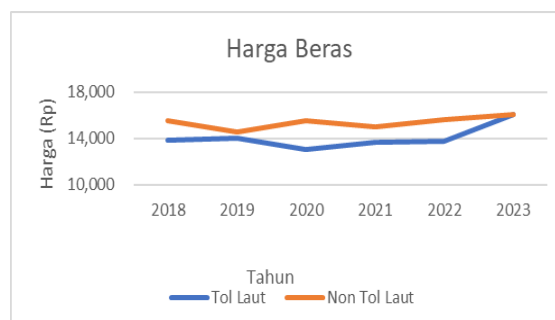
Figure 1.
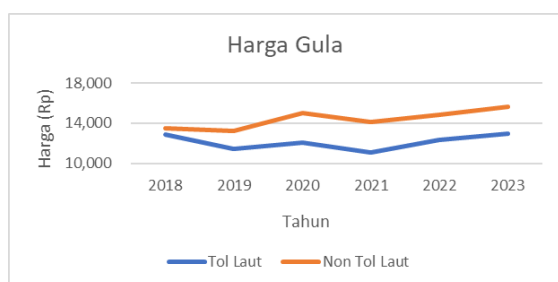Comparison of Sea Toll and Non-Sea Toll prices

Figure 2.

The PT Pelni ship assigned to the T-3 sea toll route is KM. Logistik Nusantara 4 with the cargo carried by the sea toll ship is rice, sugar, cooking oil, wheat flour, beef, chicken meat, and for essential goods including cement, construction steel, mild steel. Table 3 is the amount in kg for loading and unloading at Terempa Port, for loading from Tarempa to Jakarta (Tanjung Priok) is the cargo of fisheries, namely frozen squid and frozen fish and a few cloves which are still very minimal in terms of comparison between loading and unloading goods.

Table 3. Loading and Unloading in Tarempa

Total (.000)	Year 2021											
Date	07-Feb	03-Mar	23-Mar	15-May	13-Jun	09-Jul	6 Aug	03-Sep	30-Sep	Oct. 26	30-Nov	Dec. 18
Unloading (kg)	333.8	347.2	405.5	549	522	274.5	292	353.6	336.2	241.2	343.8	278.2
Date	17-Feb	12-Mar	01-Apr	24-May	22-Jun	na	17 Aug	15-Sep	Oct. 11	10-Nov	Dec. 7	Dec. 23
Load (kg)	60	70	127	116.4	116	na	51	66	68	36.5	78	53.5
Total (.000)	Year 2022											
Date	04-Feb	24-Feb	22-Mar	14-Apr	10-May	31-May	21-Jun	12-Jul	02-Aug	Aug. 23	Oct. 10	4 Nop	30-Nov
Unloading (kg)	283.85	378.45	230.6	243	214.5	308.31	268.51	389.8	394.5	442	478.58	490.35	452.2
Date	13-Feb	11-Mar	30-Mar	22-Apr	May-17	07-Jun	28-Jun	20-Jul	Aug. 10	01-Sep	Oct. 21	na	14 Dec.
Load (kg)	86	137	44	70	55	68	56	65	63	82	88	na	91

Source: PT Pelni, processed by the author

Data from the Anambas Regency Trade Office for the Tarempa area as in Table 4, before the sea highway program in 2017 and after the sea highway program in 2023, and from the results of processing according to statistical tests using the Wicolxon test that from the comparison of the two paired data there is no price comparison according to Table 5, where the value of Asymp Sig. (2-tailed) > 0.05, namely 0.06, then H0 is accepted, where H0 = there is no difference between the price before the sea toll and after the sea toll.

Table 4. Price Comparison

Prices of Basic and Essential Materials	Before the Sea Toll 2017 (Rp)	After Sea Toll 2023 (IDR)
In accordance with Presidential Regulation No. 59 of 2020		
Rice	15,000	16,000
Soybeans are raw materials for tofu / tempeh	13,000	18,000
Chili	90,000	70,000
Shallots	28,000	48,000
Sugar	17,000	15,000
Cooking oil (bimoli)/L	14,000	18,000
Wheat flour	18,000	13,000
Beef/kg	100,000	110,000
Purebred chicken meat	32,000	38,000
Purebred chicken eggs	2,000	2,500
12 kg LPG gas	210,000	290,000
4mm plywood	120,000	125,000
Three-wheel cement	90,000	92,000
Plain Iron	55,000	90,000
Mild steel	110,000	160,000
As per MOT 53/2020		
Noodles	2,500	3,000
Lightweight Brick	15,000	10,000
Salt	5,000	3,000
Asbestos/Gypsum	85,000	70,000
Lightweight Brick	15,000	10,000
LPG Gas other than 12 KG Gas	210,000	290,000

In Table 6 that for the negative rank value that there are 6 for the price after the sea toll is lower than the price before the sea toll and 15 for the price after the sea toll is greater than the price before the sea toll and the ties are 0 meaning that there is no equal price between the price after the sea toll and before the sea toll.

Table 5. Test Statistic
Price After Sea Toll - Price
Before Sea Toll

Z	-1.881 [b]
Asynp. Sig. (2-tailed)	0.060

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.

Table 6. SPSS Wilcoxon Test Results

Rank Test Statistic
Price After Sea Toll - Price
Before Sea Toll

		N	Mean Rank	Sum of Ranks
Price After Sea Toll - Price Before Sea Toll	Negative Ranks	6[a]	10.25	61.50
	Positive Ranks	15[b]	11.30	169.50
	Ties	0[c]		
	Total	21		

a. Price after Sea Toll < Price before Sea Toll
b. Price after Sea Toll > Price before Sea Toll
c. Price after Sea Toll = Price before Sea Toll

Discussion

Based on the research findings that the price of basic commodities in the Anambas Islands for the price of the sea highway is lower than the non sea highway from 2018 to 2023. Overall the impact of the sea highway for the Anambas Islands has a good impact. Sea tolls change the distribution of goods to be easier and faster [14]. In accordance with Table 5 of the Wilcoxon test results, the price disparity in the Tarempa area does not have a positive impact, and based on the results of interviews with distributors and retailers and direct sellers the impact of the sea highway in Tarempa is the availability of staples that are always fulfilled in good weather seasons and bad weather in the north season with very high waves.

The price of some basic goods according to the processed data from the Ministry of Trade's maritime outlets in the Anambas Islands from 2018 to 2023 that the price of goods through sea tolls tends to be lower than the price of goods through non sea tolls, meaning that the existence of the T-3 sea toll program has a positive impact on the surrounding area and of course the welfare of the people. The maritime governance policy of the government with stakeholders in managing the sea highway produces a good and specific process [15].

The perspective of the sea toll policy is to reduce price disparities in the farthest, remote, outermost and border areas (3TP). In this case the central government subsidizes pioneer transportation for sea tolls. Given the high logistics costs in the area [17]. In line with this policy Law Number: 23 of 2014 concerning Regional Government, that trade affairs are included in the category of concurrent affairs which allows the choice of trade-related authorities to be divided proportionally between the Central Government, Provincial Regions, and Regency / City Regions and in the appendix to Law Number: 23 of 2014, states that local governments have the authority to stabilize prices through market operations using the Highest Retail Price setting approach [18].

The statement from the Head of the Anambas Regency Trade Office that the Market Operation in monitoring the sea toll program is carried out in coordination with several related units and stakeholders in the Anambas Islands, is expected to stabilize prices and avoid the accumulation of goods distribution.

The sea highway whose assignment is carried out by PT Pelayaran Nasional Indonesia also has challenges, including filling the return cargo of ships from the T-3 route stopover area based on data that the average ratio of goods loaded to goods unloaded in 2021 is 19% and has increased for 2022 by 23%, of course an opportunity in the Anambas Islands area to increase the yield from the region so that economic improvement can be improved. Coordination with the local government and other stakeholders, of course, can arrange the composition of shiploads accumulated at the port so that ships can be used properly [16].

CONCLUSION

The findings of this study according to the results of the Wilcoxon test there is no difference between before the sea highway and after the sea highway. Route T-3 Sea Toll is very much needed in the Anambas Islands, the unloading process from the ship to the port, needs to be coordinated together between the port manager and the loading and unloading workforce, because the unloading equipment is only from the ship. Adequate equipment is needed to allow unloading to be done more quickly.

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