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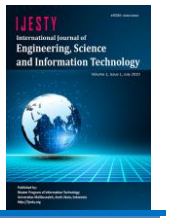

Analysis of the Relationship Between Foreign Sea Transportation Visits and Gross Domestic Product Regional in the Processing Industry Sector

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Abstract

Sea transportation is also very much needed in the processing industry for ships and passengers and the flow of goods. Suppose the incoming ship can be seen as a sender of goods or the processing industry itself. This is supported very well by the cargo and costs for sea transportation, with much cargo at a relatively low cost. Analyzing the relationship of foreign sea transportation with the regional GDP of the processing industry sector. From ship visits consisting of total and units to passenger visits consisting of passenger arrivals and departure, for variable analysis using correlation and hypothesis testing. The results of overseas sea transportation with the GDP Regional the processing industry are for the correlation results of ship visits from units (0.613) with a strong and total correlation (0.596) with a moderate correlation, for passenger arrivals (0.262) and passenger departures (0.280) both have a low correlation relationship, for the unloading flow of goods (0.607) has a strong correlation. So the visits of foreign sea transportation ships with the GDP Regional of the processing industry sector have a significant relationship of (0.00) from the unit or total ships; for passenger visits, both do not have a substantial relationship for passenger arrivals (0.141) and passenger departures (0.115). The flow of unloading of goods has a significant relationship of (0.00). The greater the number of ship visits and the flow of unloading of goods, the higher the GDP Regional of the Processing Industry Sector, but the increasing number of passenger visits has no relation to the GDP Regional of the Processing Industry Sector.

Keywords: *Sea Transportation, GDP, Regional.*

1. Introduction

By looking at the development of the value of goods and services, one can see economic growth, which can be seen in the regional GDP. These goods and services are also supported by various means of transportation, especially by sea. GDP Regional is the total value added of goods and services generated from all economic activities in all regions. The processing industry is an activity that carries out activities to change essential goods mechanically, chemically, or by hand so that they become finished/semi-finished goods and goods of less value into goods of higher value, closer to the end user. The processing industry is also a branch of manufacturing related to manufacturing recipes and can be connected with sea, land, or air transportation. Sea transportation also has a role and relationship with the processing industry. Sea transportation also has data related to ship visits, passenger visits, and goods visits, both loading and unloading. Foreign sea transport visits and the regional GDP of the processing industry sector can be analyzed using SPSS from the data obtained. Based on the formulation of the problem, the objectives achieved from this final project research are: (1) Analyzing the relationship between sea transportation visits to the GDP Regional of the processing industry sector; (2) Analyzing the relationship of sea transportation passengers to the GDP Regional of the processing industry sector; (3) Analyzing the relationship between the flow of sea transportation goods loading and unloading against the GDP Regional of the processing industry sector.

2. Literature Review

Table 1. State of The Art

No	Journal and Authors	Title	Differences and similarities
1	Transportation Journal,	Analysis of Indonesia's exports with EPEC members via sea transportation[1]	There are similarities regarding sea transportation for relationships and differences

No	Journal and Authors	Title	Differences and similarities
	Firdha Nurul Isdiana, Jaka Aminata		in indicators using GDP Regional, and the Journal uses exports.
2	Economics Journal, Rudi Hartanto, Afifah Busari, Muhammad Awaludin.	The Influence of Gross Domestic Product Regional (GDP Regional) and City Minimum Wage (UMK) on Labor Absorption[2]	There are similarities in GDP Regional and differences in journals using minimum wages while researchers use sea transportation.
3	Strategy Journal, Anwar Sappe, Murshal Manaf, Syafri	transportation The Role and Strategy of Sea Transportation on Connectivity between regions in Banggai Laut Regency, Central Sulawesi Province[3]	Has similarities regarding sea transportation for connections, has differences in terms of GDP Regional, does not use GDP Regional
4	Journal Of Transportation, Awing Asmawi	water transportation People's welfare and implementation of West Java Sea Transportation policies[4]	It has transportation similarities related to something and has differences in GDP Regional, and the Journal does not use GDP Regional.
5	Journal Of Economics, Awing Asmawi	Increasing the GDP Regional of the City of Bali through the Development of the Timber Industry[5]	It has similarities regarding GDP Regional but differs from the GDP Regional of the wood industry, while this study uses the GDP Regional of the processing industry.
6	Civil Journal, Angelica Adriana Ticoalu, Lucia IR Lefrandt, Meike Kumaat	Comparison of the choice of sea transportation modes, taxi boats, and ferries[6]	There are similarities in discussing transportation and are differences in indicators that only use passenger transport ships while this study uses passenger transport ships and also freight ships
7	Journal Of Transportation, Thomasin laura K. Kellen, Muhammad baiuni	Study of the development of seaports and sea transportation in the border area of Nunukan Island, Nunukan Regency, Kaltara Province [7]	There are similarities regarding sea transportation and differences from regions only from provinces, while this research is almost all over Indonesia
8	Indonesian Journal Of Social Science, Violina Anastasya, Try Monica, Rina Rosadah, Eurico	The influence of the transportation and communication sector on the GDP Regional of the City of DKI Jakarta [8]	Have similarities discussing transportation and GDP Regional, and differences between transportation in general and GDP Regional, while the research uses Sea Transportation and Processing Industry GDP Regional
9	Journal Of Transportation, Hanifatulmukaromah, syifa lailiyah	Hygienic Sanitation of domestic and foreign ships in seaports [9]	There are similarities regarding sea transportation and differences regarding the absence of GDP Regional in the Journal, while this study uses GDP Regional
10	Journal Of Strategy Management And Business Applications, Febriansyah, Gustaf Gautama	Analysis of the influence of transportation infrastructure development on Way Kanan's gross regional domestic product of Lampung Province [10]	There are similarities regarding transportation and differences in areas that only use provinces and use transportation, while research uses sea transportation and the GDP Regional of the processing industry.
11	Archipelago Maritime Scientific Journal, Mensa bima success	The role of sea freight forwarding (EMKL) in managing imported goods by pt. Cahaya moda indonesia at the port of tanjung emas, semarang [11]	Having similarities in transportation related to goods and having differences from GDP Regional, the Journal does not use GDP Regional, while this study uses GDP Regional.
12	Multiresearch paradigm journal, Dela rahma fauziah, Whinarko juliprijanto	The effect of road and bridge infrastructure development on the gross regional domestic product of Magelang Regency [12]	It has similarities in the existence of GDP Regional and has different indicators discussing road and bridge infrastructure, while this research is about transportation
13	Economic thesis, Arum Mega Cahyani	Islam The influence of gross regional domestic product (GDP regional) manufacturing, trade, transportation, and warehousing on the economy of Lampung province from the perspective of Islamic economics in 2010 – 2018 [13]	It has similarities regarding GDP regional and transportation and differences from its territory, only using provinces and transportation, while this research uses sea transportation, and its territory is almost all over Indonesia.
14	Journal of Economic Studies Bulletin, Aram Palilu	Analysis of the influence of transportation infrastructure on the gross regional domestic product of Ambon City [14]	Has similarities regarding transportation and GDP Regional and has differences from the region which only uses cities, while this research uses almost all of Indonesia

No	Journal and Authors	Title	Differences and similarities
15	transportation Journal, Bimo Wicaksono, nunuk Triwahyuningtyas, Renea Shinta Aminda	Analysis of the effect of the amount of land transportation, infrastructure, and population on gross domestic product [15]	There are similarities in discussing transportation and differences from transportation using land transportation while this research uses sea transportation and the GDP Regional of the processing industry
16	Journal plot one, Ruwan jayathilaka, chanuka jayawardhana, nilupul embogama, Shalini jaya sooriya, novandika	Gross domestic product and logistics performance index drive the world trade: a study based on all continents [16]	There are similarities in regional GDP and differences in transportation because this research uses sea transportation.
17	Journal of law, Kukuh tejo murti, hernawan hadi, Moch Najibimanullah, Rachma Indriyani	Legal Protection for urban online – transportation users personal data disclosure in the age of digital technology [17]	Have similarities regarding transportation and have differences in GDP Regional that do not use GDP Regional
18	Journal of marine transportation, Alexandra Fratila, Iona Andrada, Sorin Cristina, Andrei Hrehatuc	The importance of maritime transport for economic growth in the European Union: a panel data analysis [18]	There are similarities regarding sea transportation and regional differences using the European continent, while this study uses Indonesia.
19	Journal of transportation, Muhammad tafiqurrahman	Utilization of sea transportation to increase the growth of the tourism sector (2022)	Having similarities in sea transportation and differences in GDP Regional, the Journal does not use GDP Regional, while this study uses GDP Regional.
20	Physics Journal, Yongbun Wang	The correlation between GDP and different transport modes turnover is based on gray correlation [20]	It has similarities in transportation and GDP Regional and has differences in transportation using transportation while this research uses sea transportation.

2.1. Sea Transportation

Transportation is the movement of people or goods from one place to another physically and within a specific time by activators such as humans, animals, or machines. In general, transportation is divided into three parts: land transportation, air transportation, and sea transportation. Indonesia has potential areas spread from the Hinterland, connected by road transportation networks to ports, and the sea transportation system has a vital role. Sea transportation mode is an option for transporting passengers and goods in large quantities; speed and transportation costs per tonne mile are relatively low and very profitable for transporting goods and passengers over long distances, especially between islands. Indonesia also has a geography that has the potential to use sea transportation for goods, passengers, and animals. Following the decision of the Minister of Transportation No. 33 of 2001 concerning the organization and operation of sea transportation, which states that sea transportation is any transportation activity using ships to transport passengers, goods, and animals in a journey from one port to another which is carried out by a company related to that port. (UU 33 2001)**.** Based on the explanation above, it can be concluded that sea transportation is an activity or process of transporting people, goods, and animals from one place to another through internal ship transportation; the departure and arrival points are at a port, the port is also the distribution and center of the sea transportation activities.

3. Methods

According to Komaruddin, analysis is breaking down a whole into components so that you can recognize the signs of the elements, their relationship to each other, and their respective functions in an integrated whole. The data analysis technique in this study is a correlation analysis technique. Correlation analysis is used to determine the closeness of the relationship with several variables; the basic idea of correlation analysis is to report the relationship between two variables. The variable to be used is foreign sea transportation with the variable GDP Regional of the processing industry sector.

1. Normality test
   The results of the normality test of the SPSS software program using the Kolmogorov-Smirnov technique. Shows that the significant probability is more fantastic than ±0.05 with predetermined criteria. The following are several tables of normality test results related to the formulation of the problem as follows:

Table 2. GDP Regional normality test

		GDP Regional
N		33
Normal Parameters, b	Means	9.4543
	Std. Deviation	2.00192
Most Extreme Differences	absolute	0.131
	Positive	0.081
	Negative	-0.131
Test Statistics		0.131
Symp. Sig. (2-tailed)		.159c

The value of the Kolmogorov Smirnov Test above is 0.159, or it can be said to be greater than 0.05. In other words, p > Sig. With this, it can be concluded that the above variables are acceptable, so the data regarding the regional GDP of the processing industry sector is standard.

Table 3. Ship normality test

		Ship total visit	Ship unit visit
N		33	33
Normal Parameters, b	Means	15.1858	6.0159
	Std. Deviation	1.92140	1.80378
Most Extreme Differences	absolute	0.088	0.098
	Positive	0.064	0.081
	Negative	-0.088	-0.098
Test Statistics		0.088	0.098
Symp. Sig. (2-tailed)		.200c,d	.200c,d

The value of the Kolmogorov Smirnov Test above is 0.200, or it can be said to be greater than 0.05. In other words, p > Sig. With this, it can be concluded that the above variables are acceptable, and then the data regarding ship unit visits and total ships are standard.

Table 4. Ship normality test

		Arrival of passengers	Departure of passenger
N		33	33
Normal Parameters, b	Means	8.3283	8.2460
	Std. Deviation	2.41233	2.46401
Most Extreme Differences	absolute	0.238	0.251
	Positive	0.134	0.120
	Negative	-0.238	-0.251
Test Statistics		0.238	0.251
Symp. Sig. (2-tailed)		.082c	.051c

The values of the Kolmogorov Smirnov Test above are 0.082 and 0.051, or it can be said to be greater than 0.05. In other words, p > Sig. With this, it can be concluded that the above variables and data regarding average passengers' arrival and departure visits can be accepted.

Table 5. Ship normality test

		Unloading visits	Loading visits
N		33	33
Normal Parameters, b	Means	12.3861	14.0021
	Std. Deviation	2.85989	2.18354
Most Extreme Differences	absolute	0.128	0.219
	Positive	0.115	0.122
	Negative	-0.128	-0.219
Test Statistics		0.128	0.219
Symp. Sig. (2-tailed)		.200c,d	.010c

The Kolmogorov Smirnov Test above are 0.200 and 0.010, or they can be greater than 0.05. In other words, p > Sig for unloading and loading flows of goods less than 0.05. With this, it can be concluded that the above variables can be accepted, and then the data regarding regular unloading visits and loading and unloading visits is different.

2. Linearity Test

This linearity test aims to find out whether the two variables have a linear relationship or not significantly. Based on the table below, it can be seen that the results of the linearity test show that there is no linearity problem with regression and that there is a relationship between variable X and variable Y. In this study, several linearity tests were as follows:

Table 6. Ship normality test

GDP Regional – Ship Unit visits		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	31,554	6	5,259	1,926	0.119
	Linearity	19,341	1	19,341	7,084	0.014
	Deviation from Linearity	12,213	5	2,443	0.895	0.501
Within Groups		62,801	23	2,730		
Total		94,355	29			

From the table above results, it can be seen that the significance value is 0.334 obtained from (Deviation from linearity), so it can be concluded that it has a linear relationship. It can be seen from the F value that the calculated F value obtained is 1.215, and the F table is 2.640 (received from table F); it can be said that 1.215 < 2.640, which can be concluded that the relationship is linear.

Table 7. Ship normality test

GDP Regional – Visit Total visits		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	38,771	6	6,462	2,176	0.083
	Linearity	20,729	1	20,729	6,981	0.015
	Deviation from Linearity	18,042	5	3,608	1.215	0.334
Within Groups		68,290	23	2,969		
Total		107,061	29			

From the table above results, it can be seen that the significance value is 0.334 obtained from (Deviation from linearity), so it can be concluded that it has a linear relationship. It can be seen from the F value that the calculated F value obtained is 1.215, and the F table is 2.640 (received from table F); it can be said that 1.215 < 2.640, which can be concluded that the relationship is linear.

Table 8. Ship normality test

GDP Regional – passenger arrivals		Sum of Squares	df	MeanSquare	F	Sig.
Between Groups	(Combined)	34,278	5	6,856	1,433	0.351
	Linearity	3,181	1	3,181	0.665	0.452
	Deviation from Linearity	31,097	4	7,774	1.625	0.301
Within Groups		23,916	5	4,783		
Total		58,194	10			

From the table above results, it can be seen that the significance value is 0.301 obtained from (Deviation from linearity), so it can be concluded that it has a linear relationship. It can be seen from the F value that the calculated F value obtained is 1.625, and the F table is 6.256 (received from table F); it can be said that 1.625 < 6256, which can be concluded that the relationship is linear.

Table 9. Ship normality test

GDP Regional – Passenger Departure		Sum of Squares	df	MeanSquare	F	Sig.
Between Groups	(Combined)	29,992	5	5,998	0.976	0.510
	Linearity	4,451	1	4,451	0.724	0.434
	Deviation from Linearity	25,540	4	6,385	1.039	0.470
Within Groups		30,722	5	6,144		
Total		60,713	10			

From the results of the table above, it can be seen that the significance value is 0.470 obtained from (Deviation from linearity), so it can be concluded that it has a linear relationship. It can be seen from the F value that the calculated F value obtained is 1.039, and the F table is 6.256 (received from table F). It can be said that 1.0.39 < 6.256, which can be concluded that the relationship is linear.

Table 10. Ship normality test

GDP Regional – unloading flow of goods		Sum of Squares	df	MeanSquare	F	Sig.
Between Groups	(Combined)	90,472	6	15,079	2,625	0.055
	Linearity	72,294	1	72,294	12,586	0.002
	Deviation from Linearity	18,178	5	3,636	0.633	0.677
Within Groups		97,644	17	5,744		
Total		188,117	23			

From the results of the table above, it can be seen that the significance value is 0.677 obtained from (Deviation from linearity), so it can be concluded that it has a linear relationship. It can be seen from the F value that the calculated F value obtained is 0.633, and the F table is 2.810 (received from table F); it can be said that 0.633 <2.810, which can be concluded that the relationship is linear.

3.1. Correlation Test

A simple correlation test determines the relationship between foreign sea transportation visits and the regional GDP of the processing industry sector. Interpretation of the size of the correlation coefficient obtained can be done using guidelines on specific provisions, which can be seen in the following table:

Table 11. Correlation intervals

Correlation intervals	Relationship level
0.00 – 0.199	Very low
0.20 – 0.399	Low
0.30 – 0.599	Currently
0.60 – 0.799	Strong
0.80 – 1.00	Very strong

Source: Sugiyono (2018:274)

The following are the results of the correlation test as follows:

Table 12. Correlation test

		Ship unit visits	ship total visit	Arrival passengers	departure Passenger	unloading flow of goods
GDP Regional processing industry	person correlation	0.613	0.596**	0.262	0.280	0.607
	N	33	33	33	33	33

From the table above, it can be concluded that the correlation relationship of foreign sea transportation with the Processing Industry Sector GDP Regional is as follows:

a. The relationship between ship unit visits and the processing industry's regional GDP is 0.613, with a solid positive correlation because the correlation interval is 0.60 - 0.799.
b. The relationship between total ship visits and the processing industry's regional GDP is 0.596, with a positive correlation because the correlation interval is 0.30 - 0.599.
c. The relationship between ship arrivals and the processing industry's regional GDP is 0.262, with a low positive correlation because the correlation interval is 0.20 - -0.399.
d. The relationship between ship departure visits and the GDP Regional of the Processing Industry gets some 0.613 with a low positive correlation because the correlation interval is 0.20 - 0.399.
e. The relationship between ship unloading visits and the processing industry's regional GDP is 0.613, with a strong correlation. Positive because the correlation interval is 0.60 – 0.799.

3.2. Hypothesis

Hypothesis testing aims to determine the decision to accept or reject the hypothesis. Based on the results below, it can be seen that the hypothesis test results show a relationship between variable X and variable Y. In this study, several correlation test tests were carried out, namely as follows:

Table 13. Hypothesis test

		Ship unit visits	ship total visit	Arrival passengers	departure Passenger	unloading flow of goods
GDP Regional processing industry	Sig. (2-tailed)	.000	.000	0.141	0.115	.000
	N	33	33	33	33	33

From the table above, it can be concluded that the correlation relationship of foreign sea transportation with the Processing Industry Sector GDP Regional is as follows:

a. There is a significant relationship between ship unit visits and the regional GDP of the processing industry, getting several 0.000 with this considerable relationship.
b. There is a significant relationship between total ship visits and the regional GDP of the processing industry, getting several 0.000 with this considerable relationship.
c. There is no significant relationship between ship passenger arrivals and the processing industry's GDP Regional with a score of 0.141, with this relationship being insignificant.
d. There is no significant relationship between ship passenger departure visits and the processing industry's GDP Regional with a score of 0.115, with this relationship being insignificant.
e. There is a significant relationship between ship unit visits and the regional GDP of the processing industry, getting several 0.000 with this considerable relationship.

4. Result and Discussion

From the results above, the relationship between foreign sea transportation and the GDP Regional of the processing industry sector can be explained as follows:

a. Unit visits and total foreign sea transportation with the GDP Regional of the manufacturing sector have a significant relationship, which shows the number (0.00) with a correlation relationship of (0.613) a strong level of units and total ship visits with a correlation level of (0.596) with a moderate level. This proves that the increasing number of unit visits and total foreign sea transportation will also increase the GDP region of the processing industry sector.
b. Arrivals and departures of foreign sea transportation passengers with GDP Regional of the Manufacturing Industry Sector have an insignificant relationship for arrivals (0.141) with a low correlation level of (0.262) and for departures (0.115) with a low correlation level of (0.280). This proves that the increasing arrival and departure of foreign sea transportation passengers is unrelated to the increase in the GDP region of the processing industry sector.
c. Visits unloading flow of foreign sea transportation with the GDP Regional of the processing industry sector has a significant relationship, showing the number (0.00) with a strong correlation level of (0.607). This proves that the increasing number of visits by the flow of unloading goods for foreign sea transportation will also increase the GDP region of the processing industry sector.

5. Conclusion

Ship visits and bong flows have a significant relationship with a strong correlation, while passenger visits from departures and arrivals have no meaningful relationship with a low correlation. This shows that the increasing number of ship visits and visits to unload foreign sea transportation goods has resulted in higher regional GDP in the processing industry sector. Passenger visits are not related to the Processing Industry sector's GDP Regional.

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