

# The Strategy of Increasing Economic Growth of the Maritime Sector: South Sulawesi Analysis Context

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**Abstract.** This research aims to analyze the strategy of increasing economic growth of the maritime sector through the influence of maritime tourism, capture fisheries, and sea freight companies on economic growth (Gross Regional Domestic Product) in South Sulawesi Province from 2006 to 2015. The model analysis used in this study is multiple linear regression which includes the use of F-test, t-test, and test of coefficient of determination (R squared). Our findings confirm that marine tourism and capture fisheries variables significant affected economic growth, whereas sea freight company variable had no significant effect. The simultaneous test shows that there is a significant relationship between marine tourism, capture fisheries, and sea freight companies on economic growth. Our study also identifies the R squared to be 0.982, indicating that the independent variables can explain up to 98.2% of the effects on economic growth. The policy strategy adopted by the Provincial Government of South Sulawesi to increase economic growth of the maritime sector included the development of the marine industry, specifically in sea freight companies.

**Keywords:** Marine Tourism, Capture Fisheries, Shipping Company, Gross Regional Domestic Product, South Sulawesi Province, Economic Growth Strategy.

## 1. Introduction

Indonesia's Constitution Law No. 17 of 2007 concerning National Long-Term Development Plan for years 2005-2025 mandates eight development missions for Indonesia, one of them being the realization of Indonesia becoming an archipelagic country. Chapter III Appendix to Law No. 17 of 2007 clarifies that one specific development mission for Indonesia within the next 25 years is to actualize Indonesia becoming an independent, developed, and solid archipelagic country based on national interests by: fostering maritime insight in its people and government for a marine-oriented development of the country; increasing human resource maritime insight capacity through marine education and technology development; managing the national waters to uphold sovereignty and prosperity; and creating an integrated marine economy through optimizing marine resource utilization in a sustainable manner [1].

A new millennium offers an opportunity to think about possible future directions in ocean policy [2]. The maritime and marine sector is an important part of *Dimensi Sektor Unggulan* (Superior Sector Dimension) in the wheel of national development. The long-term national development vision is to make Indonesia become a marine-oriented archipelagic country. To achieve this vision, there are several important Indonesian maritime and marine aspects whose strengths, weaknesses, and challenges must be identified. An economic development policy which focuses on the development of maritime, fisheries, marine tourism, marine mining, sea freight, maritime construction, and marine service sectors must be implemented. There are several challenges that Indonesia is facing, such as the role of regencies in meeting the long-term national development vision; identifying the main factors which encourage marine-based economic development; integration of inter-sector roles and cooperation of central regencies in actualizing large maritime programs; and identifying the main obstacles in maritime sector development still present within regencies. An economic sector



strategy is required to support this economic development. In the context of maritime economics, there are at least seven strategic spectrums, namely: fisheries, marine tourism, marine mining and power, maritime industry, sea freight, marine construction, and marine services. Indonesia has a potential in aquatic resources that can bolster development and progress of these seven spectrums to become the nation's economic locomotion [3].

South Sulawesi Province is located on the southern peninsula of Sulawesi Island. It is a strategic location found in the middle of the archipelagic country and serves as the bridge between western and eastern Indonesia. This area has been nicknamed the *Pintu Gerbang Kawasan Timur Indonesia* (Gate to Eastern Indonesia). This province is known as a port city along a strategic trade way, giving it a comparative and competitive advantage. The Makassar Strait is often used as an international shipping route. The maritime industry – through sea freight, marine tourism, and capture fisheries – directly affects locally-generated revenue and indirectly affects asset growth in Riau Island Province by path analysis approach (Tumpal and Inge, 2014). Their research differs from this one; we analyze the strategy of economic development in the maritime of different economic influences (marine tourism, capture fisheries, and sea shipping companies) on Gross Regional Domestic Product (GRDP) in South Sulawesi Province from 2006 to 2015 [4].

### **1.1. Research Questions**

The questions raised for this research are as follows:

1. Was there a relationship between marine tourism, capture fisheries, and sea shipping companies on GRDP growth, either partial or simultaneously, in South Sulawesi Province between 2006 and 2015?
2. What strategic policy was taken by the South Sulawesi Provincial Government in increasing economic growth of the maritime sector?

### **1.2. Research Objectives**

The objectives of this study are as follows:

1. To identify the significance of the affect of marine tourism, capture fisheries, and sea shipping companies on GRDP growth in South Sulawesi Province between 2006 and 2015.
2. To formulate a strategic policy for the maritime sector for South Sulawesi Provincial Government in order to increase economic growth of the maritime sector.

### **1.3. The Review**

#### **a. Marine Tourism**

Marine tourism is a sub-sector of the marine industry covers tourism and support activities such as hotels, restaurants, souvenirs, among others [3]. The marine tourism sector is a major contributor to economic development by utilizing local natural resources.

This sector is the most efficient in the marine industry, giving it priority over other sub-sectors in the marine industry. Marine tourism development is done through using tourist objects and attractions as optimally as possible. The various types of tourism objects and attractions include natural tourism (beaches) and biodiversity. Potential of marine tourism is spread throughout almost all large coastal regencies or cities, which could possibly significantly impact these areas [5].

Management of marine tourism targets of middle- to lower-class tourists is mainly done by locals. This management is not optimal, often leading to destruction of these tourist destinations. Local governments should be further involved to improve management of these marine tourism spots. They have to manage the biophysical features of the area; concerned with processes to sustain the ecosystems in the area; and management of visitors [6]. Suitable facilities will extend the stay of tourists, allowing them to absorb local culture much more, and letting local creative industries take advantage of the increase in potential customers [7].

### ***1.4. Capture Fisheries***

Capture fisheries are constituted through historically specific environmental conditions and social and economic relations of production [8]. Capture fisheries is another sub-sector of the marine industry which covers catching, raising, and cultivating all varieties of fish and other marine life found in both coastal areas and in the sea. The manufacturing industry which focuses on fish and other marine life is also part of this sub-sector [3].

The development of this sub-sector is viewed as a yardstick of success of national maritime economic development by the Department of Fisheries and Maritime. This leads to an expected growth of fish production yields. Efficiency of these devices is measured by using frontier production function analysis, viewed from technical and price efficiency. The achievement of technical and price efficiency will ultimately lead to economic efficiency.

### ***1.5. Shipping Companies***

Sea freight development is necessary for the development of the maritime industry. Creation of shipyards and ports must be built simultaneously to ensure the realization of maritime connectivity [5].

Sea freight is a sub-sector of the marine field which covers shipping goods and passengers by way of boat operating both within and outside of Indonesia [3]. Sea freight services are made up of all activities that support sailing, trade, and marine resource development.

### ***1.6. Gross Regional Domestic Product (GRDP)***

Gross regional domestic product (GRDP) is an indicator of economic progress, defined as the overall added value of goods and services produced within one year's time in an area. Calculation of added value of goods and services is grouped together with nine other sectors. GRDP is an indicator of economic growth where a higher number signals a greater potential in increasing standard of living of the people. This is measured by income per capita [4].

From the explanation above, we can conclude that GRDP can also be used in a statistical analysis which measures the rate of economic growth as well as in analyzing the rate of prosperity changes in real time based on price consistency of goods and services. GRDP also shows the added value of all goods and services produced in an area at a certain period.

### ***1.7. Hypotheses***

Based on the research objectives and the theoretical framework discussed earlier, we have set the following research hypotheses:

H<sub>1</sub>: Marine tourism significantly affects economic growth in South Sulawesi Province.

H<sub>2</sub>: Capture fisheries significantly affect GRDP growth in South Sulawesi Province.

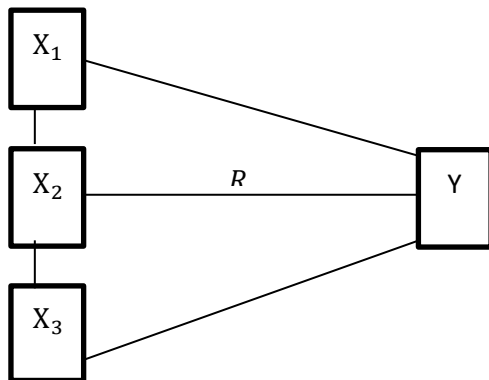
H<sub>3</sub>: Sea freight companies significantly affect economic growth in South Sulawesi Province.

H<sub>4</sub>: Marine tourism, capture fisheries, and sea freight companies significantly affect economic growth in South Sulawesi Province.

## **2. Methodology**

The study employs the use of quantitative data to test the hypotheses [9]. The dependent variables of this study are marine tourism, capture fisheries, and sea freight companies. The independent variable used to measure economic growth is GRDP. This study was conducted in South Sulawesi Province.

The data collection technique in this study is secondary data collected from time series data from 2006 to 2015 for each city and regency in South Sulawesi Province [10]. The research model used is as follows:



This model will create a multiple linear regression, simplified through the following formula:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

Where:

Y = GRDP

a = Constant

X<sub>1</sub> = Marine tourism

X<sub>2</sub> = Capture fisheries

X<sub>3</sub> = Sea freight companies

R = Multiple correlation

### 3. Results And Discussions

#### 3.1. Analysis of Influence of Marine Tourism, Capture Fisheries, and Shipping Companies on Economic Growth of South Sulawesi Province

The research model used in this study was used to test the independent variables against the dependent variable [11]. Prior to this, it is necessary to perform a significance test on each independent variable on the dependent. Table 1 summarizes the significance test.

**Table 1.** Significance test of independent variables on independent variable

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	90274113236.467	3	30091371078.822	167.059	.000 <sup>b</sup>
	Residual	1080746622.033	6	180124437.005		
	Total	91354859858.500	9			

a. Dependent variable (GRDP)

b. Predictors: (Constant), Shipping Company, Capture Fisheries, Marine Tourism

Testing of the hypotheses was done simultaneously through F-test, which shows a significance value of 0.000 which is within the boundaries of significant ( $0.000 < F \leq 0.050$ ). This indicates a significant relationship, meaning that the three independent variables (H<sub>1</sub>, H<sub>2</sub>, and H<sub>3</sub>) simultaneously significantly affect GRDP.

Table 2 summarizes the regression analysis by testing the effects of the independent variables (marine tourism, capture fisheries, and sea freight companies) on GRDP [12].

**Table 2.** Regression analysis

		<b>Coefficients<sup>a</sup></b>			
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	B		
1	(Constant)	22389.161	19866.498	1.127	.303
	Marine Tourism	.050	.005	1.044	.000*
	Capture Fisheries	.001	.003	.028	.003*
	Shipping Companies	939.379	631.893	.102	.188

a. Dependent variable (GRDP)

\* Denotes a significant relationship to GRDP

The multiple linear regression model was used to test the significance of marine tourism, capture fisheries, and shipping companies on GRDP [13]. The following formula is the result of the regression analysis:

$$GRDP = 19866.498 + 1.044X_1 + 0.028X_2 + 0.102X_3$$

The results of the partial correlation tests (t-test and F-test) are as follows:

H<sub>1</sub>: Marine tourism significantly affected economic growth in South Sulawesi Province between 2006 and 2015 (Sig. value of 0.000).

H<sub>2</sub>: Capture fisheries significantly affected economic growth in South Sulawesi Province between 2006 and 2015 (Sig. value of 0.003).

H<sub>3</sub>: Shipping companies did not significant affect economic growth in South Sulawesi Province between 2006 and 2015 (Sig. value of 0.188).

H<sub>4</sub>: Marine tourism, capture fisheries, and shipping companies simultaneously and significantly affected economic growth in South Sulawesi Province between 2006 and 2015 (F-value of 0.000).

Table 3 shows the summary for the regression analysis.

**Table 3.** Model Summary

Model	R	RSquare	Adjusted R Square	Std. Error of Estimate	Durbin-Watson
1	.994	.988	.982	13421.04456	1.769

The Adjusted R Square (coefficient of determination) value of 0.982 indicates that the three independent variables have a 98.2% affect on GRDP. 1.8% remains unknown and can be found through further research.

### **3.2. Policy Strategy in Increasing Economic Growth of the Maritime Sector in South Sulawesi Province**

Based on the analyses above, the developed strategic policy for economic growth focused on:

1. Development of the maritime industry was synergistic, optimal and sustainable.
2. Development of sea freight was supported by the development of the maritime industry which covered shipyard and ship component construction, seaport construction, and the sailing industry. These must be done simultaneously in order to ensure maritime connectivity.
3. Integrated internalization of social empowerment in managing coastal resources.
4. Maritime service industry development must be marine-oriented based on the potential of available local resources.

## 4. Conclusion and Suggestions

### 4.1. Conclusion

The conclusions of this study are as follows:

1. Marine tourism significantly affected economic development in South Sulawesi Province.
2. Capture fisheries significantly affected economic development in South Sulawesi Province.
3. Shipping companies did not significantly affect economic development in South Sulawesi Province.
4. Marine tourism, capture fisheries, and shipping companies simultaneously and significantly affected economic development in South Sulawesi Province.
5. Strategic policies set by the government in South Sulawesi Province include expanding the maritime industry, specifically for shipping companies to perform synergistically, optimally, and sustainably in order to significantly affect economic development in South Sulawesi Province.

### 4.2. Suggestions

From the conclusions mentioned above, the writers offer some recommendations for future research. First of all, this study is not a comprehensive research and still needs development. We also suggest using a SWOT analysis to analyze strategy and policies of the maritime sector in order to calculate meaningful beta weights for each variable recorded by every respondent. A combination of the strengths, weaknesses, opportunities, and threats can be used to prioritize strategic policies.

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