




# Blue Economy's Role in Indonesia's Maritime Development and Local Growth

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**Abstract.** This study aims to examine the role of the blue economy in promoting local economic growth in coastal areas of Indonesia. Using secondary data from 2013-2022, this study employs multiple regression analysis to evaluate the impact of maritime sectors, namely fisheries, marine tourism, sea transportation, and ocean energy, on local economic growth. The results indicate that none of these sectors significantly impact local economic growth in the analyzed sample. While the sea transportation sector shows a positive relationship, its contribution is not statistically significant. Conversely, both the fisheries and marine tourism sectors exhibit a negative correlation with local economic growth. Factors such as inadequate infrastructure, unsustainable management practices, and limited innovation are considered to be the primary reasons for the low contribution of these sectors. This study recommends enhancing the management of maritime resources, increasing investment in sea transportation infrastructure, and supporting the development of ocean energy to maximize the potential of the blue economy in Indonesia.

**Keywords:** blue economy, local economic growth, maritime, Indonesia, fisheries sector, marine tourism, sea transportation, ocean energy

## 1 Introduction

Indonesia is the world's largest archipelagic country, with immense maritime potential. As a nation surrounded by oceans, the maritime sector plays a crucial role in the national economy, including fisheries, sea transportation, and marine tourism. With a coastline stretching over 95,000 kilometers and a maritime area of approximately 325 million km<sup>2</sup>, Indonesia has significant opportunities to leverage marine resources as an economic driver, particularly through the implementation of the blue economy concept [1]. The blue economy refers to an economic development approach focusing on the sustainable utilization of marine resources with the goal of not only enhancing economic growth but also preserving the sustainability of the marine environment. Through the application of the blue economy, Indonesia is expected to improve the productivity of the maritime sector while simultaneously protecting marine ecosystems from degradation. This concept aligns with the Sustainable Development Goals (SDGs), particularly SDG 14, which focuses on the conservation and sustainable use of oceans, seas, and marine resources [2].

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M. Nohong et al. (eds.), *Proceedings of the 9th International Conference on Accounting, Management, and Economics 2024 (ICAME 2024)*, Advances in Economics, Business and Management Research 331,

[https://doi.org/10.2991/978-94-6463-758-8\\_5](https://doi.org/10.2991/978-94-6463-758-8_5)

1. However, despite its immense potential, the utilization of marine resources in Indonesia faces numerous challenges, including limited infrastructure, inadequate management, and conflicting interests between environmental conservation and resource exploitation. Furthermore, disparities in development between coastal and inland areas continue to affect the well-being of coastal communities. Therefore, effective blue economy development requires an integrative approach that not only emphasizes economic improvement but also considers the sustainability of marine ecosystems and the empowerment of local communities.
2. Most existing research tends to focus on the environmental aspects of the blue economy, such as marine conservation and fisheries resource management, while the direct impact on the economic well-being of coastal communities is often overlooked [3]. Several international studies have examined the potential of the blue economy in driving sustainable development in developing countries, such as in Africa and Latin America, but in-depth studies on the application of this concept in Indonesia remain limited. Previous research in Indonesia has predominantly highlighted specific sectors, such as sustainable fisheries or coral reef conservation, but few have explored the holistic role of the blue economy in supporting local economic growth across sectors.
3. Moreover, studies on blue economy policies in Indonesia have generally been normative, discussing the potential and importance of the maritime sector without fully addressing how these policies can be translated into concrete actions that support local economic growth in various coastal regions. Research exploring the challenges of policy implementation, particularly regarding infrastructure limitations, human resources, and stakeholder collaboration at the local level, is also scarce.
4. This study aims to assess the role of the blue economy in promoting local economic growth in Indonesia, with a focus on how the maritime sector can contribute to improving the well-being of coastal communities. By identifying key sectors involved in the blue economy and analyzing existing challenges and opportunities, this research is expected to provide relevant recommendations for policymakers at both the local and national levels.

## 2 Literature Review

### 2.1 The Concept of Blue Economy

The concept of the blue economy was first introduced by Gunter Pauli in his book *"The Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs"* in 2010 [4]. This term refers to an economic approach that sustainably utilizes marine resources with the aim of generating economic benefits while preserving the marine environment. The blue economy encompasses not only economic activities directly related to the sea, such as fisheries and marine tourism, but also renewable ocean energy (wave, tidal, and offshore wind energy), sea transportation, and marine ecosystem services.

In literature, the blue economy is often compared to the green economy. While the green economy focuses on reducing the ecological footprint through the efficient use of land-based resources and energy, the blue economy seeks to maximize the utilization of marine resources while ensuring the sustainability of marine environments and social

well-being. The core principles of the blue economy include balanced economic, social, and ecological sustainability, innovation in the use of marine resources, and the inclusion of coastal communities in sustainable economic activities.

## **2.2 Blue Economy di Indonesia**

With its vast marine resources, Indonesia has significant potential to become a pioneer in the implementation of the blue economy. Strategically positioned along international trade routes and home to extraordinary marine biodiversity, Indonesia's maritime sector plays a critical role in the national economy [5]. According to the Ministry of Marine Affairs and Fisheries, the maritime sector contributes approximately 20% to Indonesia's Gross Domestic Product (GDP). Key sectors within the blue economy in Indonesia include fisheries, marine tourism, sea transportation, and renewable ocean energy.

In recent years, the Indonesian government has demonstrated its commitment to developing the blue economy through various policies and initiatives. One notable program is the declaration of Indonesia as the "World Maritime Axis," aimed at enhancing Indonesia's strategic role in the global maritime economy [6]. Through this program, the government seeks to develop maritime infrastructure, boost the productivity of the fisheries sector, and harness the potential of ocean-based renewable energy. However, the challenges faced in implementing the blue economy concept in Indonesia are complex, ranging from inadequate coastal infrastructure and low levels of maritime literacy among local communities to marine environmental degradation due to unsustainable economic activities [7].

## **2.3 The Role of the Blue Economy in Local Economic Growth**

An essential aspect of the blue economy is its contribution to local economic growth, particularly in coastal regions. A study conducted by Silver et al. (2015) indicated that marine-based economic development can significantly impact job creation, increase local incomes, and reduce poverty in coastal areas. For example, the fisheries sector serves as a primary source of income for coastal communities in Indonesia. However, without proper management, this sector is vulnerable to overfishing and environmental degradation, which can threaten long-term livelihoods.

The literature also suggests that the blue economy has the potential to enhance the economic well-being of local communities while delivering positive social and ecological outcomes. For instance, marine tourism has shown positive effects on increasing local incomes in various regions of Indonesia, such as Bali, Lombok, and Raja Ampat. However, poorly planned tourism development can also lead to environmental degradation, including coral reef damage and marine pollution.

In addition, renewable ocean energy, such as wave and tidal energy, has significant potential to be developed in Indonesia, particularly in remote areas that are difficult to reach by conventional electricity grids. This energy source can not only provide electricity to coastal communities but also support local economic growth by creating new jobs in the renewable energy sector.

## **2.4 Challenges and Opportunities for Developing the Blue Economy in Indonesia**

Despite Indonesia's vast potential for developing the blue economy, several challenges must be addressed. One of the main challenges is the lack of adequate maritime infrastructure in coastal regions, which hampers the development of key sectors such as fisheries, sea transportation, and marine tourism[8]. Additionally, low levels of maritime literacy among local communities also hinder the effective implementation of the blue economy. Many coastal communities still rely on unsustainable economic practices, such as overfishing and the use of harmful chemicals in fisheries activities [9].

However, behind these challenges lie significant opportunities. For instance, advancements in technology for marine resource management can provide solutions to issues like overfishing and environmental degradation. Moreover, government policies that support the development of the maritime sector, such as the Strategic Plan of the Ministry of Marine Affairs and Fisheries, can serve as key drivers for the growth of the blue economy in Indonesia.

## **2.5 Blue Economy Policies in Developing Countries: A Comparative Study**

Several developing countries have begun adopting the blue economy concept to promote local economic growth. African countries like Seychelles and Mauritius have initiated blue economy development by investing in marine tourism and ocean-based renewable energy. A study conducted by the World Economic Forum shows that the development of the maritime sector in these countries has successfully created new jobs and increased the incomes of coastal communities[10].

As a developing country with vast marine potential, Indonesia can learn from other countries in developing blue economy strategies. This policy comparison can help Indonesia identify sectors with significant potential and formulate more effective policies to support local economic growth based on the blue economy.

## **3 Research Methodology**

This study employs a quantitative approach to analyze the role of the blue economy in promoting local economic growth in Indonesia. The quantitative approach was chosen because this research aims to empirically measure the impact of maritime sectors on local economic growth variables. Multiple regression analysis is used to evaluate the relationship between independent variables and the dependent variable. The secondary data used in this study covers the period from 2013 to 2022, including statistical data from the Indonesian Central Bureau of Statistics (BPS), the Ministry of Marine Affairs and Fisheries, and the Ministry of Tourism. The variables used include economic growth, fisheries, marine tourism, sea transportation, and renewable ocean energy. The conceptual framework of the study is depicted below:

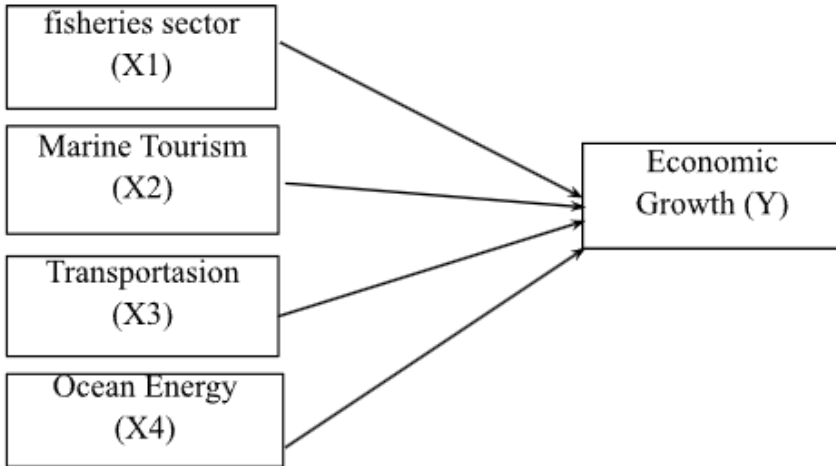


fig 1 : Conceptual Framework

This study uses multiple regression analysis to examine the relationship between independent variables (maritime sectors) and the dependent variable (local economic growth). The regression model is as follows:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon \tag{1}$$

## 4 Results and Discussion

### 4.1 Results

The results of the multiple regression analysis show the regression coefficients of the four blue economy sectors (fisheries, marine tourism, sea transportation, and ocean energy) on local economic growth in coastal areas of Indonesia. The summary of the regression results is as follows:

Table 1. Coefficient of Determination Summary

Model Summary						
Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	of the
1	.602 <sup>a</sup>	.363	-.147		3.14881	

a. Predictors: (Constant), energi, transportasi, pariwisata, perikanan

The coefficient of determination ( $R^2$ ) value of 0.363 indicates that 36.3% of the variation in local economic growth can be explained by these four independent variables.

**Table 2.** Multiple Linear Regression Results

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-76.798	129.442		-.593	.579
	perikanan	-.184	.244	-.691	-.754	.485
	pariwisata	-.606	4.551	-.069	-.133	.899
	transportasi	13.611	20.504	.314	.664	.536
	energi	.140	9.901	.016	.014	.989

a. Dependent Variable: pertumbuhan ekonomi

Source: Output SPSS 25, 2024

The equation for the regression model is:

$$-76.798Y = -0.184X1 - 0.606X2 + 13.611X3 + 0.140X4 \quad (2)$$

Based on the results in Table 2, it is shown that the X1 variable (fisheries) has a coefficient of -0.184, indicating that for every increase of 1 billion rupiah in fishery production, there is a negative correlation with local economic growth, although this relationship is not statistically significant ( $p\text{-value} = 0.485 > 0.05$ ). This suggests that the fisheries sector does not have a significant positive impact on local economic growth in the sample used.

Similarly, the X2 variable (marine tourism) has a coefficient of -0.606, also indicating a negative relationship between the contribution of marine tourism and local economic growth, and this result is not statistically significant ( $p\text{-value} = 0.899$ ). This means that the increase in marine tourism does not significantly contribute to local economic growth in this model.

The X3 variable (sea transportation) shows a positive coefficient of 13.611, indicating that the sea transportation sector has a positive impact on local economic growth, but the relationship is not statistically significant ( $p$ -value = 0.536). This result shows that the sea transportation sector, although important, has not yet contributed significantly to economic growth in the context of this sample. Meanwhile, the X4 variable (ocean energy) has a coefficient of 0.140, indicating a positive relationship between the ocean energy sector and local economic growth, but this relationship is also not statistically significant ( $p$ -value = 0.989). This indicates that the ocean energy sector still has a very minimal impact on local economic growth.

## 4.2 Discussion

The results show that the fisheries sector does not significantly contribute to local economic growth. This could be due to issues such as overfishing, low added value of fishery products, or a lack of innovation in sustainable fisheries management. Despite the great potential of the marine tourism sector, the regression results show a negative relationship. This may be due to poor management or the negative environmental impacts of unsustainable tourism, such as environmental degradation in marine tourism destinations.

Next, although the sea transportation sector has a positive coefficient, it has not significantly contributed to local economic growth. This could be due to suboptimal infrastructure or inadequate connectivity between islands to support wider maritime economic activities. Meanwhile, although the ocean energy sector holds great potential, it is still in the early stages of development in Indonesia. Investment in this sector is still limited, and the technology to harness ocean energy is not yet widespread, so its contribution to local economic growth has not been significantly observed.

## 5 Conclusion

Based on the results of multiple regression analysis and the previous discussion, several important points can be concluded regarding the role of blue economy sectors in promoting local economic growth in coastal areas of Indonesia.

1. The research results show that none of the analyzed blue economy sectors (fisheries, marine tourism, sea transportation, and ocean energy) has a significant influence on local economic growth in Indonesia's coastal regions. This indicates that these sectors, although having great potential, have not yet had a significant impact on local economic growth in the context of this research sample.
2. Among all the sectors analyzed, the sea transportation sector has the largest positive coefficient, indicating its potential contribution to local economic growth. However, this relationship is not statistically significant, possibly due to limited infrastructure or insufficient logistics distribution.
3. Surprisingly, the fisheries and marine tourism sectors, which were expected to be key drivers of local economic growth, show a negative relationship with local economic growth. Although not statistically significant, these results may reflect the

challenges faced by these sectors, such as unsustainable economic practices, environmental issues, and a lack of innovation and proper management.

4. The ocean energy sector has a very small and insignificant coefficient. This indicates that investment and technological development in this sector are still limited, so its contribution to local economic growth has not yet been significant. However, this sector holds potential for future development if supported by the right policies and sufficient investment.

## 6 Recommendations

Based on the findings of this research, several policy implications should be considered:

1. The government needs to focus on improving the management of maritime sectors, particularly fisheries and marine tourism, by ensuring the sustainability of resources and enhancing the added value to the local economy. Efforts should be made to address overfishing and environmental degradation, which threaten long-term economic growth. Additionally, the promotion of innovation and sustainable practices in these sectors is essential to ensure their long-term contribution to local economic growth.
2. Given that the sea transportation sector shows positive results, although not statistically significant, further investment in the development of port infrastructure, ships, and maritime transportation services could help drive local economic growth. The government should also prioritize improving connectivity between islands to support broader economic activities in coastal and maritime regions.
3. Although not yet significant, the ocean energy sector holds great potential for the future. The government should accelerate investment in ocean energy technologies, both through subsidies, public-private partnerships, and incentives for renewable energy companies. The development of this sector could play a vital role in providing sustainable energy solutions to remote coastal areas while also generating employment opportunities and contributing to economic growth.
4. Due to data limitations in this study, it is recommended that future research expand the sample size to include more coastal regions across Indonesia. In-depth studies examining other factors that influence local economic growth, such as infrastructure, education, and government policies, should also be conducted to provide a more comprehensive understanding of the blue economy's role in Indonesia.

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