

Economic Valuation of Recreational Services at Tanjung Kelayang Beach for Sustainable Tourism Development in Belitung, Indonesia

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Abstract. Sustainable tourism development requires a comprehensive consideration of economic, ecological, and social aspects. This study aims to determine the economic value of recreation at the Tanjung Kelayang tourism destination in Belitung, Indonesia, using the Travel Cost Method (TCM). Based on a survey of 105 tourists, the results indicate a consumer surplus of 14.4 million rupiah per tourist. With an annual number of 34,074 tourist visits, the recreation value of Tanjung Kelayang is estimated at 122.7 billion rupiah. This substantial economic value represents the potential for developing the destination while integrating economic, ecological, and social dimensions. The findings highlight the importance of sustainable destination development strategies that balance economic benefits with environmental conservation and community involvement.

Keywords: economic value, consumer preferences, destination development, Travel Cost Method (TCM)

1. Introduction

Indonesia has a lot of beautiful nature that has the potential to be developed into a tourism destination. The tourism industry is one of the strategic sectors in national development (Hasibuan et al., 2019) . Indonesia has many beautiful tourism destinations whose information can be accessed in one application (Meiliana et al., 2017) . One location that is currently developing is the Tanjung Kelayang beach tourist area in Belitung. The Tanjung Kelayang has the potential to be developed as a famous tourist destination and become a leading destination in Belitung. The development of the Tanjung Kelayang tourist destination can be directed towards sustainable beach tourism (Hengky & Kikvidze, 2021).

In carrying out tourism activities, many fields are involved such as: economic, ecological and social. The tourism sector must be developed according to the principles of sustainable development (Dube, 2020) . The development of tourist destinations currently focuses on economic aspects in the form of opening employment opportunities and increasing economy region. Many tourist destination developments still focus on economic growth (Heagney et al., 2019) . Several articles prove the influence of tourism on economic income in Indonesia, including the construction of the Mandalika circuit on people's income as seen from ticket purchases, travel costs, and the amount of employment (Aida et al, 2024; Widjaja, et al, 2023). Social aspect in the form of community involvement to develop and preserve areas/destinations is still very minimal, apart from that ecological or environmental aspects have not been considered. Community-based tourism is an important part that supports sustainable tourism (Han et al., 2019) . Community involvement has an influence on the impact of tourism on society, while the economic impact does not always change community perceptions. The social and environmental components are closely related to the welfare of society, so that the environmental components are closely related to the conditions of the nearest community (Rianto et al, 2023). The goal of sustainable tourism is to balance economic needs with the environment. Therefore, this study is needed as a reference for economic valuation for the development of sustainable tourism destinations.

This condition in the long term is very detrimental and cause a tourist destination to become unsustainable or even causing disaster for human. The ideal conditions in developing tourist destinations is the integration between economic, social and environmental aspects. We need to change the mindset from short-term profits to long-term profits with sustainable tourism will provide benefits, especially for the surrounding community and reduce negative impacts on the environment. With this study, the economic valuation of a sustainable tourist destination can become a reference for other destinations in Indonesia.

2. Material and Methods

The total economic value of an environment can be divided into use value and non-use value. Use value consists of direct use value and indirect use value. Non-use value is divided into existence value, option value and inheritance value. Economic assessments are carried out on environmental commodities that do not have a market price (Juutinen et al., 2022) .

The basic concept of valuation refers to the contribution of a commodity to achieving certain goals. In an ecological context, a gene has high value if it is able to contribute to the survival rate of the individual who has that gene. In the ecological economics view , value is not only for maximizing individual welfare but is also related to ecological sustainability and distributional justice. Environmental commodity assessment involves external factors that influence the environment (Sánchez et al., 2021) .

Economic valuation is an effort to provide a quantitative value for goods and services produced by natural resources and the environment, both on the basis of market value and non-market value . Resource economic valuation is an economic tool that uses certain valuation techniques to estimate the monetary value of goods and services produced by natural resources and the environment. Understanding the concept of economic valuation allows policy makers to determine the effective and

efficient use of natural and environmental resources. This is because the application of economic valuation shows the relationship between natural resource conservation and economic development. The economic value of a tourist destination is also related to adjacent protected areas (Heagney et al., 2019).

According to the guidelines, economic valuation of natural resources and the environment is the imposition of a monetary value on some or all of the potential of natural resources in accordance with the purpose of their utilization. The economic valuation of natural resources and the environment in question is the total economic value (total net value), the value of restoring damage/pollution and preventing pollution/damage. Economic valuation of tourist areas can also be carried out using the benefit transfer method (He et al., 2023).

Environmental services are basically assessed based on "willingness to pay" (WTP) and "willingness to accept" (WTA). Willingness to pay can be interpreted as how much people are willing to pay to repair a damaged environment (consumer's willingness to pay), while willingness to accept is how much people are willing to pay to prevent environmental damage (producer's willingness to accept compensation) in the event of a deterioration in environmental quality. Willingness to pay or willingness to accept reflects individual preferences, willingness to pay and willingness to accept are parameters in economic assessment.

There are four approaches to using WTP and WTA which can be used as a guide to obtain information from the public, namely: 1) WTP to secure a benefit, showing how much value consumers are willing to pay to improve environmental quality, 2) WTA to forego a benefit, shows how much loss can be accepted if environmental improvements are made, 3) WTP to prevent a loss, shows prevention efforts, residents are given an idea of the losses that can occur due to a dirty environment, 4) WTA to tolerate a loss shows the value of losses that can be prevented.

Total Economic Value (TEV) can be written with the following mathematical equation:

$$TEV = UV + NUV$$

$$UV = DUV + IUV + OV$$

$$NUV = EV + BV$$

$$TEV = UV + NUV = (DUV + IUV + OV) + (EV + BV)$$

$$TEV = \text{Total Economic Value (Total Economic Value)}$$

$$UV = \text{Use Values}$$

$$NUV = \text{Non Use Value (Intrinsic Value)}$$

$$DUV = \text{Direct Use Value}$$

$$IUV = \text{Indirect Use Value (Indirect Use Value)}$$

$$OV = \text{Option Value (Option Value)}$$

$$EV = \text{Existence Value (Existence Value)}$$

$$BV = \text{Bequest Value (Inheritance Value/Pride)}$$

The grouping of economic value concepts is as follows:

1. Use value is obtained from the actual use of natural resources and the environment. Use value relates to value because someone uses it or hopes to use it in the future.
2. Direct use values are calculated based on the contribution of natural resources and the environment in assisting current production and consumption processes. Direct use value relates to output that can be directly consumed, for example food, health, recreation.
3. Indirect use values are determined by the benefits derived from environmental services in supporting the flow of production and consumption. Indirect use value is obtained from the

function of environmental services in providing support for current production and consumption processes, for example the value of various ecological functions in the recycling of nutrients in the soil. Thus, indirect use value is the functional benefits of ecological processes that continuously contribute to society and ecosystems.

4. Option value is related to the choice of environmental use in the future. Option value is the consumer's willingness to pay for assets that are not used for the reason of avoiding the risk of not being able to use them in the future. Thus, option use value includes benefits from natural resources and the environment that are not exploited at present, but are saved for future benefit.
5. non-use value is the value given to natural resources and the environment on the basis of their existence, even though they are not consumed directly. Intrinsic value is related to the positive value of willingness to pay if someone does not intend to use it, then this value is differentiated into existence values and bequest values .
6. Existence values have value because a person or community is satisfied with the existence of an asset, even though the person concerned has no desire to use it. The value of existence is given by a person or society to natural resources and the environment solely as a form of concern because it has provided aesthetic, spiritual and cultural benefits. For example, people give value to ritual culture in the harvest procession in South Sulawesi so that this culture remains sustainable.

Steps for Economic Valuation Activities of environmental impacts are: 1) Selecting an economic value approach that is in accordance with the study objectives; 2) Define the area of AMDAL activities that will be analyzed, the specific boundaries of the ecosystem and the surrounding area; 3) Identify all components, functions and attributes of the scope of AMDAL activities and arrange them in levels based on their degree of importance; 4) Develop a classification of all functions and benefits of AMDAL activities into various types of ecosystem use that will be utilized (use value and non-use value); 5) Identify the information and data needed as well as the method for collecting it; 6) Analyze all information and data that has been collected in order to quantify the economic value of AMDAL activities; 7) Implementing an appropriate assessment method, namely by using the Cost Benefit Analysis method .

Environmental economic assessment of public goods or non-market goods (non-market valuation) is based on the concept of willingness to pay (WTP). Assessment using the WTP approach is carried out by looking at community preferences in responding to the environmental quality that occurs around them. Thus, non-market valuation assessments can be used to provide economic valuations for environmental goods including ecotourism. Determining the economic value of coastal tourism areas must involve the preferences of the people around the area (Muttaqim et al., 2021) .

In general, environmental economic assessment techniques cannot be assessed can be classified into two groups, the first group is valuation techniques that rely on implicit prices where willingness to pay is revealed through the model developed (revealed preference method). The second group is a valuation technique based on direct surveys about the willingness to pay or WTP is obtained directly from respondents. These two methods are mostly applied as a valuation methodology for non-market valuation goods , the contingent valuation method (CVM) is included in the expressed preference method group and the travel cost method (TCM) is included in the revealed preference method . The TCM method has major limitations. First , TCM is built on the assumption that each visitor only has one tourist destination, so in this case the multiple visit aspect cannot be used. Second, TCM does not differentiate between individuals who come from holiday makers and visitors from the local area (residents). Third, the problem of measuring the value of time, the time variable has its own intrinsic value which is expressed in the form of the cost of sacrifice. The TCM method is used in economic valuation to comprehensively capture consumer preferences (Merciu et al., 2021) .

3. Result and Discussion

Tanjung Kelayang Beach is the popular destination tourism because the view is amazing, which includes white sand and various Granite stone in various shapes and configurations. Tanjung Kelayang is an area Economy Special (SEZ) tour in Indonesia. Tanjung Kelayang is objective A popular tourist attraction because of its various views and activities. Natural resources and ecosystems (such as coastlines and forests) are one type of tourist attraction, while built resources and ecosystems (such as agriculture, mining, rural, etc.) is the one other .

The attractions of the Tanjung Kelayang Tourist Area are: The white sand beach is famous for its beauty. On On the coast and coast there are many granite rocks ranging in size from small to very large. Rock the known with batholith. Rock granite the estimated aged around 65-200 million year Which Then. Presence rock the give Power pull Which unique For area beach. Besides beauty, rock the own mark historical Which tall. Power pull other is exists lighthouse Which historic in island galangal And beauty lower the sea Which worthy For made object snorkeling.

National Tourism Development Master Plan (RIPKN), The Belitung Government set 25 location of the beach and coastal tourism area in Belitung Regency. From 25 locations the, 9 location among them Already set in Regulation Area Number 18 Year 1990 about Determination Region Tanjung Kelayang Beach, Tanjung Tinggi Beach And Tanjung Binga Beach as Region Tourism and Regional Regulations Number 7 of 2001 concerning Determination of the Tanjung Kelayang Beach Area, Tanjung Tinggi Beach And Tanjung Binga Beach as Region Tourist.

The population in Sijuk District in 2017 was 182,418 people. Eye people's livelihood is as fishermen, farmers and traders. Land use in the sub-district is in the form of housing and services trading, And garden mixture. Wide beach Cape Flying reach 500m with surface Which tends to slope. This area is traversed by 2 main drainage channels in the form of rivers whose flow is relatively smooth, so that the area is relatively safe from flooding. Average height during conditions relatively low tides ie 13.1 cm, while at low tide, the average wave height only reaches 1.8 cm. Average temperature in the region beach Cape Flying And waters island Galangal is 28 – 30 ° C. Level salinity waters reach 28 mg/l with a brightness of between 6 – 10 meters in the west season and 3 – 5 meters in the east season. Seabed in the form of white sand with calm currents, calm waves and sea depth within 1 nautical mile from the line Beach maximum 5 meters. Around the waters of Tanjung Kelayang, the types of coral reefs that exist include: Acropora, Heliopora, Goniopora, Fungia, Millepora, Sarcophyton, and Sinularia. Tanjung beach area Flying is dock to go to to surrounding islands which become destination mainstay.

Most tourists who come to Tanjung Kelayang do beach tourism, swimming and fishing. Data on tourists to Tanjung Kelayang in 2023 is as in table 1.

Table 1. Number of tourist visits to Tanjung Kelayang beach in 2022

Month	Activity			Total
	Fishing	Swimming	Beach Tourism	
January	439	1.024	1.464	2.927
February	309	721	1.030	2.059
Maret	482	1.124	1.606	3.211
April	51	118	169	338
Mei	749	1.747	2.496	4.991
June	622	1.452	2.074	4.148
July	428	998	1.425	2.850
August	359	837	1.196	2.391
September	270	629	899	1.797

October	497	1.160	1.657	3.313
November	400	933	1.334	2.667
Desember	507	1.184	1.691	3.382
Total	5.111	11.926	17.037	34.074
Average Tourist per month	426	994	1.420	

Mark economy describe amount maximum somebody want to sacrifice goods And service For obtain benefits maximum. Besides describe mark economy, mark Also describe mark ecological an ecosystem. This desire to pay is also related to the increase in income that a person has indifferent position towards external factors . Exogenous changes occurs due to price changes (e.g. due to resource increasingly rare) or Because change quality source Power.

The amount of value that tourists are prepared to spend To use enjoy the natural beauty of the tourist area Cape Glide, describe mark economy from area the. On study This, magnitude Money Which willing to be issued by tourists stated by money that tourists have spent on needs tour in Tanjung Kelayang . That need covers cost transportation, cost consumption, cost accommodation, cost traveling, shopping costs in location tour. We collected secondary data about tourist expenditure using a questionnaire which was then processed in Microsoft Excel using the TCM method.

Survey results of 105 tourists come from random samples with an error limit of 10% from a population of 348,154 people, show that the average budget allocation prepared by tourists amounting to 3.9 million rupiah. Meanwhile the budget used during travel is an average of 2.4 million rupiah excluding air transportation costs. The budget used is still below the budget allocated For travel in Region Tanjung Kelayang. This value indicates that tourism in the Tanjung Kelayang area conditions below mark economy (under value) area the.

From the results of this research, it can be seen that tourists have not spent the budget prepared for traveling to Tanjung Kelayang. There is still an allocation of 1.5 million that has not been spent by tourists who come to Tanjung Kelayang. The management is challenged to continue thinking about increasing the attractiveness of Tanjung Kelayang which can increase the comfort of tourists who come. The remaining budget of 1.5 million can also be used to increase tourists' stay by one more night, as long as there are attractions that are interesting for tourists.

Type expenditure Which There is covers cost accommodation, transportation local, consumption, small gifts And etc like cost parking, snacking And toilet. Based on the cost allocation the lowest is cost souvenirs/souvenirs amounting to 370 thousand rupiah And cost other as big as 267 thousand rupiah . The management can invite business actors, small and medium business traders, and all interested parties in the tourism sector to design various interesting souvenirs. Another effort is to create various attractions, especially those related to beach tourism, which can encourage tourists to increase their stay time.

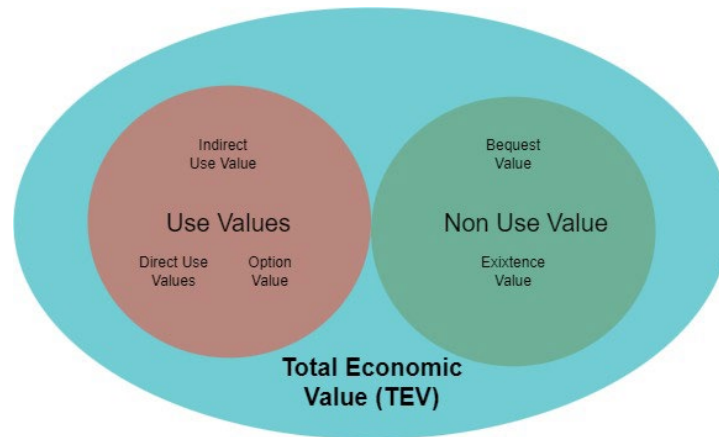


Fig.1: Concept of Total Economic Value (TEV)

Tourists have a budget of 16.8 million rupiah, which if you deduct tourism costs excluding long-distance transportation, the customer surplus is 14.4 million (2.4 million rupiah is used in tourist travel costs). By economy, area tour Tanjung Kelayang own potency Which Enough big, Because from results analysis using TCM, it was found that there was a consumer surplus of 14.4 million rupiah per tourist. If we calculate the total consumer surplus with the number of tourists who come to Tanjung Kelayang, we get an economic value of 490,7 billion rupiah with the assumption that visits in 2022 will be 34,074 people. Visitor surplus is obtained from the difference between the costs incurred and the benefits obtained or the willingness to pay. In connection with this study, the consumer surplus obtained is a potential cost that can be utilized by tourist area managers to maintain environmental quality or make tourist destinations into sustainable tourist destinations. Total travel costs consist of transportation costs 41% (public transport, private vehicles, rental vehicles), consumption costs 10%, lodging costs 12%, documentation costs 1%, tour package costs 19%, souvenir costs 14% and other costs 3%. According to Rahayu and Haryati in 2022, other tourist attractions in Indonesia such as Kafiir Beach in Manokwari are also very affordable economically and produce surplus value for each tourist. This is also in line with other tourist attractions in Southeast Asia, namely Kilim Karst Geoforest Park, in Langkawi Malaysia which presents a high tourist surplus (Matthew et al, 2019). This can attract tourists to come and make repeat tourist visits.

Based on analysis the, area tour Tanjung Kelayang own potency big for developed and supported by factor continuity from aspect ecology, social And economy. The development of tourist destinations must follow a sustainable development strategy (Tung, 2020) . However thereby, For anticipate surge in tourists, managers/regional governments need to prepare infrastructure and area management so that the negative impact of visitors can be minimized and develop tourist attractions to support it effort utilization area in support increasing numbers traveler. Strategic decisions in developing tourist destinations must combine the preferences of tourists and local communities (Mackay et al., 2020) .

4. Conclusion

This study assessed the economic value of recreation at the Tanjung Kelayang tourism destination in Belitung, Indonesia, using the Travel Cost Method. The results revealed a substantial consumer surplus of 14.4 million rupiah per tourist, translating to an annual recreation value of 490,7 billion rupiah based on the number of tourist visits. These findings underscore the significant economic potential of the Tanjung Kelayang destination, which should be harnessed through sustainable development strategies.

The study contributes to the understanding of economic valuation in tourism development, particularly in the context of Indonesia's natural tourism destinations. The economic value estimates

can inform decision-making processes and support the development of policies and strategies that strike a balance between economic growth, environmental conservation, and community involvement.

Future research could explore the ecological and social dimensions of the Tanjung Kelayang destination, as well as the preferences and perceptions of local communities and other stakeholders. A comprehensive assessment of economic, ecological, and social factors would provide a more holistic understanding of sustainable tourism development in the region.

It is recommended that destination management and policymakers utilize the economic value findings as a basis for developing sustainable tourism strategies, infrastructure planning, and resource allocation. Additionally, efforts should be made to promote community-based tourism initiatives, environmental conservation measures, and continuous monitoring of the destination's carrying capacity to ensure long-term sustainability.

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