

Application of Travel Cost Method in Economic Valuation at Gumuk Kantong Muncar Banyuwangi Beach

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ABSTRACT

Gumuk Kantong Beach is one of the beaches in Muncar district, Banyuwangi Regency. This beach was previously known as a dirty beach which was then managed as a tourist attraction. The entrance ticket price has increased from year to year and in 2023 the entrance ticket price will increase to 100%, so the management gets complaints from visitors. The aim of this research is to identify the characteristics of visitors to Gumuk Kantong Beach, analyze the factors that influence the demand for visits to Gumuk Kantong Beach, estimate the economic value of Gumuk Kantong Beach using the Travel Cost Method approach and estimate the potential revenue for Gumuk Kantong Beach in 2024 based on entrance ticket prices. The research method used in this research uses quantitative research with the Travel Cost Method approach. The research method uses several tests, namely descriptive statistical tests, inferential statistical tests, and quantitative analysis. The number of samples used in this

research was 45 respondents. The analysis method used is multiple linear regression. The hope of this research is the economic value of Gumuk Kantong beach, visit demand factors and also estimates of visit demand. The research method uses several tests, namely descriptive statistical tests, inferential statistical tests, and quantitative analysis. The number of samples used in this research was 45 respondents. The analytical method used is multiple linear regression with the Ordinary Least Square (OLS) method. The research results show that the factors that have a significant influence on visiting Gumuk Kantong Beach with an error rate of 5% are travel costs and age. The consumer surplus value of Gumuk Kantong Beach per visit per person is IDR. 7,518. The economic value of Gumuk Kantong Beach per year is IDR. 1,195,384,554. This value shows that visitors still have the desire to maintain the sustainability of Gumuk Kantong Beach as a tourist location in Banyuwangi, East Java.

Introduction

Banyuwangi is a regency located at the eastern tip of East Java province with the nickname the sunrise of Java. This Regency is known for its natural, cultural and religious wealth to support economic growth through the tourism sector (Haryanto and Mukaffi, 2022). Banyuwangi Regency has the longest coastline on the island of Java, reaching 175.8 meters. With the long coastline of Banyuwangi regency, there are various good phenomena related to climate change in the past. A complete natural laboratory worthy of being a world-scale research and education center. So, it is not surprising that Banyuwangi Regency has many beaches tourism. It is known that there are 24 beaches in Banyuwangi such as Pulau Merah Beach, Sukomade Beach, Teluk Ijo Beach, Plengkung Beach, Boom Beach, Cacalan Beach and others (Baraas, 2022). Beach tourism is tourism that relies on water or sea elements. Beach tourism is part of coastal tourism that uses beaches as tourist attractions in a particular coastal area (Hamzah, et al, 2022). One of the beaches that is currently being developed is Gumuk Kantong beach in Muncar District.

Gumuk Kantong Beach is a beach that was previously neglected and was only used as a shrimp pond. Currently, this place has been converted into a tourist attraction. Gumuk Kantong Beach is in Sumbersewu Village, Muncar District and has a beautiful beach with black sand and lots of lush pine plants on the edge of the beach which makes the beach atmosphere cool. On this beach there are also Japanese heritage bunkers, turtle conservation and pine tree conservation which are starting to be developed into educational tourism. Gumuk Kantong Beach features culinary delights and beaches that are ideal for witnessing sunrises. In addition, an open meeting room is available at Gumuk Kantong Beach, which is frequently utilized for festivals and other gatherings. Additionally, camping is permitted on this beach.

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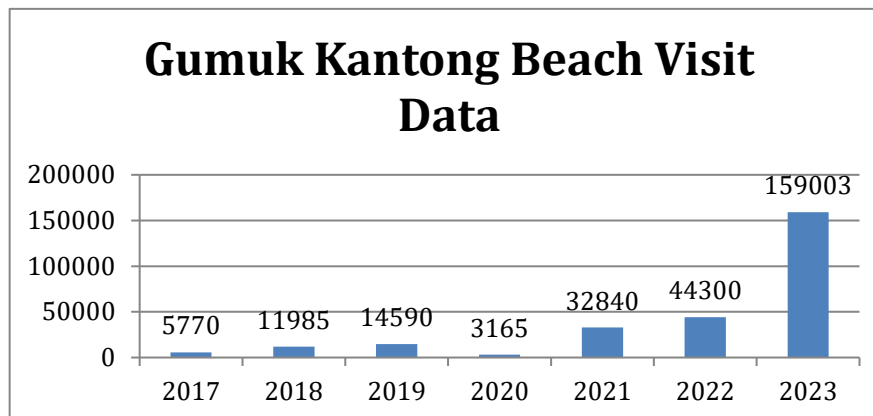


Figure 1. Gumuk Kantong Beach Visit Data

Based on data on tourist visits at Gumuk Kantong Muncar Beach in the picture above for the last 7 years, calculated from 2017 to 2023, the number of tourists has experienced quite drastic increases and decreases. In the first year the number of visits was still relatively small because not many people knew about Gumuk Kantong beach, as time went by the number of visits continued to increase. However, in 2020 it decreased very significantly due to Covid-19. In 2021 there will be an increase but it is still relatively small due to government regulations which implement a system of opening and closing tourist destinations. In 2022, there will continue to be an increase, but it will not be significant because Gumuk Kantong beach is still undergoing the stages of improving facilities and rearranging tourist attractions. In 2023, visits to Gumuk Kantong beach will increase drastically, with the current conditions after Covid-19, people who previously did not travel are now traveling and also because of the addition of attractions such as the turtle hatchery.

Economic Valuation can be used to assess the impact of an activity on natural wealth (assets) whether it can provide benefits or be a burden or cost. If the value of the economic benefits produced by natural resources and ecosystems is greater than the costs, then it can be considered to support action for the protection and preservation of these objects. Economic Valuation can be important instruments that can influence governmental, social, individual and collective decision making (Zambrano-Monserrate et al., 2018). The economic assessment is obtained by carrying out an economic valuation using the travel cost method. According to Fauzi (2014), TCM (Travel Cost Method) has the basic principles of consumer demand theory which is the value a person gives to the environment (non-marketed attributes). Travel Cost Method or TCM is often used to analyze demand for outdoor tourism. The TCM method is based on travel costs incurred for activities carried out in tourist areas. Basically, the price of entrance tickets to tourist attractions cannot describe the entire value of the tourism presented. The use of the TCM method can describe the overall value of a tourist attraction. Likewise, the value of consumer surplus can be illustrated from calculating the demand curve based on the actual use of the recreation area.

The fundamental purpose of economic valuation is to assist in decision-making by estimating the economic efficiency of a variety of potential applications. Tourists are instrumental in the current endeavors to advance Gumuk Kantong Beach. The travel costs incurred by each visitor are regarded as the fundamental component comprising the overall economic worth of Gumuk Kantong Beach. Development thus requires information in order to attract visitors. A reference can be made to data regarding visitor characteristics when analyzing the factors that influence travelers. The assessment of Gumuk Kantong Beach's valuation enables informed decision-making concerning the development of tourist destinations that do not compromise the utility experienced by visitors. In addition, it is necessary to conduct a revenue estimation analysis using the potential revenue generated by the sale of entrance tickets at Gumuk Kantong Beach. This analysis will provide the management with a benchmark against which to establish demand targets for the year 2024.

This research was conducted to maintain the sustainability of Gumuk Kantong beach, considering that the tourist location depends on the available environmental conditions. In dealing with natural and environmental resources in the form of tourist areas that have the potential for beauty that can easily be

exploited by the community, it is necessary to carry out regular development in the form of improving facilities that can trigger development in a positive direction towards the economy, socio-culture and resource sustainability. In this case, it is very important to carry out a monetary assessment to limit the occurrence of money externalities which can cause market failure for goods or administration that do not have a market price.

One way to provide monetary value is by calculating valuations to estimate economic value based on travel costs incurred to visit a tourist attraction, because travel costs indirectly reflect visitors' willingness to pay to maintain the sustainability of the tourist location. Based on previous research conducted by (Hermianto, 2015). shows that there are four factors that influence the number of requests for the Green River tourist attraction, namely travel costs, income, age and distance. After partial testing, of the four variables observed, only the distance variable had a significant effect on the number of requests for the Green River tourist attraction. Meanwhile, the variables travel costs, income and age do not have a significant effect on the number of requests for the Green River tourist attraction. Meanwhile, research (Putra, 2017) states that statistically it can be seen that there are several independent variables in this research that are significant to the dependent variable, such as total travel costs, total income, education level, group size and gender. And the rest, age, travel distance, travel time and marital status do not significantly influence visit requests.

Therefore, it is necessary to calculate the economic value of Gumuk Kantong Beach as a consideration and planning for Gumuk Kantong Beach in the following year. So, the author is interested in conducting research with the title "Application of the Travel Cost Method in Economic Valuation at Gumuk Kantong Muncar Beach, Banyuwangi"

Method

The population in this study is all visitors to Gumuk Kantong beach in 2023. The population in this research was 159,003 people. The sampling technique in this research uses non-probability sampling, namely a sampling technique that provides unequal opportunities for each element or member to be selected as a sample. The sampling technique uses purposive sampling, namely a sample determination method by determining targets from population elements that are thought to be most suitable for collecting data. Sampling requirements in this research include:

1. The respondent is 17 years old or more, considering that at this age the respondent has reached adulthood and is able to think and make decisions
2. No multiple trips are taken by the respondent.

To determine the sample size, researchers used Roscoe's theory in Sugiyono (2018). The appropriate sample size in research is between 30 (thirty) to 500 (five hundred). This study has 4 Variables. 3 (Three) independent variables and 1 (one) dependent variable. Based on this explanation, the number of samples determined in this research was 45 respondents. 30 respondents based on the minimum provisions that have been described. Meanwhile, the remaining 15 are closer to the population.

This research uses quantitative analysis with a travel cost method approach. Researchers visited Gumuk Kantong beach to conduct interviews and observations, this was done as a first step to find problems and obtain research data, then distributed questionnaires.

Data analysis techniques used include descriptive statistical tests, inferential statistical tests consisting of classic assumption tests (normality test, multicollinearity test and heteroscedasticity test), hypothesis tests (multiple linear equation test, determination test (R²), T test and F, and quantitative analysis test. Data processing in this research used the IBM SPSS version 26 application

Result and Discussions

The respondents in this research were visitors to Gumuk Kantong beach. These respondents were taken as many as 45 respondents based on Roscoe's theory. This research questionnaire contains visitor description data and research variables consisting of 4 variables, namely travel costs (X₁), income (X₂) and age (X₃) as (independent variables) and visit requests (dependent variables). Visitor description data consists of name, gender, age, income and occupation. Data on respondent characteristics are as follows:

Table 1
Visitor Characteristics

Description	Information	Number of respondents	Percentage
Total Cost of Travel	Rp 0 – Rp.20.000	7	15,56%
	Rp.20.001–Rp.30.000	20	44,44%
	Rp. 30.001 – Rp. 40.000	10	22,22%
	≥Rp. 40.001	8	17,78%
Income	Rp 0-Rp 1.000.000	16	35,55%
	Rp 1.000.001-Rp 2.000.000	14	31,11%
	Rp 2.000.001-Rp 3.000.000	11	24,44%
	≥Rp 3.000.000	4	8,90%
Occupation	Student	5	11,12%
	House Wife	2	4,44%
	Staff	12	26,67%
	Private Employees	1	2,22%
	Self-employed	15	33,33%
	government employees	1	2,22%
	Others	9	20%
Age	17-24	18	40%
	25-32	10	22,22%
	33-40	4	8,89%
	≥41	13	28,89%

Source: Primary Data, 2024

The general characteristics of the majority of visitors to Gumuk Kantong Beach are aged between 17-24 years who come from Banyuwangi, have an entrepreneurial background and have an income of Rp. 0- Rp. 1,000,000. When going on a tourist trip, the cost for the tourist trip is a maximum of IDR. 50,000. The characteristics of visitors to Gumuk Kantong Beach Tourism were identified descriptively. The explanation of visitor characteristics is carried out descriptively based on information and data obtained through interviews and questionnaires. Visitor characteristics are an important part of this research, because it can be used to estimate the factors that influence the demand for tourist visits from Gumuk Kantong Beach. A deep understanding of visitor characteristics is the key to managing and marketing tourist destinations such as Gumuk Kantong Beach. Strategies that are tailored to visitors' psychographics, socio-demographics, geography and travel patterns can increase their attractiveness and satisfaction, thereby supporting tourism development in that location.

In this research, the factors that influence tourism demand from Gumuk Kantong Muncar Banyuwangi Beach are identified using the individual Travel Cost Method (ITCM) model which is part of the Travel Cost Method (TCM). Travel cost method is a method for assessing goods and services that do not have a price, such as the environment of public parks and recreation areas. Estimating the factors that influence the demand for visits to Gumuk Kantong Beach for each individual per year. Using multiple linear regression analysis based on OLS (Ordinary Least Square).

Table 2
Multiple Linear Regression Output

Model	Unstandardized Coefisient		Standarized Coefisient	t	Sig.
	B	Std. Error			
(Constant)	5,968	1,259		4,740	0,000
Travel Cost (X₁)	-0,000133	0,000	-0,546	-4,188	0,000
Income (X₂)	-0,437	0,309	-0,186	-1,414	0,165
Age (X₃)	0,082	0,023	0,482	3,565	0,001
Dependent Variabel: Visit Request					

Source: SPSS Output

Based on the results of the multiple liner regression test above, the regression analysis using the Ordinary Least Square (OLS) approach has the following equation values: $Y = 5.968 - 0.000133 - 0.437 + 0.082$. Data analysis in this study used 45 respondents using multiple linear regression analysis, coefficient of determination, t test and F test. The results of the data analysis can be explained as follows:

1. Travel Cost (X1)

Based on the results of the tests that have been carried out, it can be seen that the travel cost variable has a significant influence on the demand for visits to Gumuk Kantong Beach, Banyuwangi. This can be seen in the t test that total travel costs have a calculated t value of -4.188 with an absolute value of 4.188, which means it is greater than t table 2.019 and has a significance value of 0.000. These data show that H1 is accepted. The t test value produces a negative value, which means that every change in travel costs will reduce the number of requests to visit Gumuk Kantong Beach, Banyuwangi. From the test results, it was found that travel costs had a significant effect on the demand for visits to Gumuk Kantong Beach. This is because when making a tourist visit, travel costs are costs considered by tourists which influence the decision to visit Gumuk Kantong Muncar Banyuwangi Beach. This is in line with research conducted by Masniadi (2021) entitled Analysis of the Economic Value of the Balad Beach tourist attraction in West Sumbawa Regency which states that the travel cost variable has a significant effect on visit demand.

2. Income (X2)

Based on the results of the tests that have been carried out, it can be seen that the Income variable has an insignificant influence on the demand for visits to Gumuk Kantong Beach, Banyuwangi. This can be seen in the income t test which has a calculated t value of --1.414 with an absolute value of 1.414 which means it is smaller than the t table of 2.019 and has a significance value of 0.165. These data show that H2 is rejected. The t test value produces a negative value, which means that every change in income will reduce the number of requests for visits to Gumuk Kantong Beach, Banyuwangi. From the test results, it was found that income had no significant effect on the demand for visits to Gumuk Kantong Beach. A person's income will determine whether a person can travel or not. A person will travel if he has more money, which will not affect the condition of the household if he spends that money. Therefore, the higher a person's income, the greater the possibility of a person traveling. These results are in line with research conducted by Masniadi (2021) entitled Analysis of the Economic Value of the Balad Beach tourist attraction in West Sumbawa Regency which stated that the income variable had no significant effect on visit demand.

3. Age (X3)

Based on the results of the tests that have been carried out, it can be seen that the age variable has a significant influence on the demand for visits to Gumuk Kantong Beach, Banyuwangi. This can be seen in the age t test which has a t value of 3.565, which means it is greater than t table 2.019 and has a significance value of 0.001. These data show that H3 is accepted. The t test value produces a value which means that every change in age will increase the number of requests to visit Gumuk Kantong Beach, Banyuwangi. From the test results, it was found that age had a significant effect on the demand for visits to Gumuk Kantong Beach. This shows that as age increases, the demand for visits will increase. These results are in line with research conducted by Fitriyani (2017) entitled Economic Valuation of Kampong Anggrek Agrotourism in Sumberpetung Hamlet, Sempu Village, Ngancar District, Kediri Regency Using the Individual Travel Cost Method Approach, stating that the age variable partially has a significant effect on visit demand. This is in line with Mill and Morisson's (1995) statement that increasing age will increase the ability to think about how to allocate income to determine the types of goods and services to be consumed, including consumption at tourist attractions.

Consumer surplus is assessed as the benefits obtained by visitors from tourist locations. The calculation of consumer surplus is carried out based on the demand equation model created. The calculation of consumer surplus can be formulated as follows (Putra, 2017):

$$CS = -\frac{1}{\beta_1}$$

Information:

CS = Consumer surplus

β_1 = Variable coefficient of total travel costs

The travel cost variable coefficient (β_1) is a regression for factor X1, namely total travel costs. β_1 is obtained from OLS multiple linear regression calculations which have gone through the classical assumption test. The economic value of Gumuk Kantong Beach is calculated as the total consumer surplus of visitors in a period using the formula (Putra, 2017):

$$NE = CS \times JP_{2023}$$

Information:

NE = Economic value of the tourist area (Rp/year)

CS = Visitor consumer surplus (Rp/visit)

JP2023 = Total number of recent visitors for one year or in 2023

Consumer surplus for the linear demand function can be seen from the coefficient of the travel cost variable, namely -0.000133. From the formula above, consumer surplus can be calculated as follows:

$$CS = -\frac{1}{\beta_1}$$

$$CS = -\frac{1}{-0,000133}$$

$$CS = \text{Rp. } 7.518$$

From the calculation above, it can be seen the value of consumer surplus based on willingness to pay using travel costs of IDR. 7,518 per person per visit. This figure shows the maximum fee paid by visitors to Gumuk Kantong beach. Calculation of economic valuation for the entire visitor population (JP) in a particular year (Pearson, 2003). In this research, the number of visitors in 2023 is used as the final year. Thus, the economic value (NE) of Gumuk Kantong Beach is obtained as follows:

$$NE = CS \times JP_{2023}$$

$$NE = 7.518 \times 159.003$$

$$NE = \text{Rp. } 1.195.384.554$$

The economic value of Gumuk Kantong beach tourism per year based on travel costs is IDR. 1,195,384,554. The large value of the economic benefits of resources from Gumuk Kantong beach shows that management and development must be carried out well so that there is no reduction in the economic value obtained at tourist locations. As well as the destruction of existing natural resources.

The consumer surplus value describes the benefits of Gumuk Kantong Beach Banyuwangi enjoyed by visitors per visit. The consumer surplus value obtained from calculating the travel cost variable coefficient of -0.000133 is IDR 7,518. per person per visit means the value of the benefits that visitors get is equivalent to IDR 7,518. This result is much smaller than the price that visitors have to pay to enter Gumuk Kantong Beach, namely IDR 10,000. The resulting consumer surplus value represents the overall travel costs, not just the entrance ticket costs. This consumer surplus value can be used as an entry ticket fee for Gumuk Kantong Beach. This shows that Gumuk Kantong Beach provides smaller benefits compared to the costs incurred during the trip to the Gumuk Kantong Beach tourist location.

Obtaining a consumer surplus value of IDR 7,518 per person per visit results in an economic value for Gumuk Kantong Beach of IDR. 1,195,384,554 per year with the number of visitors in 2023 being 159,003. Based on the results of calculations using consumer surplus, the economic benefit value of natural resources from Gumuk Kantong Beach is smaller than the entrance ticket price. Therefore, management must be carried out well so that there is no reduction in the value of the economic benefits obtained by visitors and development must be carried out to increase the economic value of Gumuk Kantong Beach. Information regarding the economic value provides considerations for the management to always maintain the sustainability of Gumuk Kantong Beach. If errors occur in management and development that cause environmental damage, there is also the potential for losses from natural tourism (Fauzi, 2014).

Conclusion and Suggestion

Based on the results and discussions carried out to analyze visit requests and calculate the economic value of Banyuwangi's Gumuk Kantong Beach, it can be concluded as follows: (1) The general characteristics of the majority of visitors to Gumuk Kantong Beach are aged between 17-24 years who come from Banyuwangi, have an entrepreneurial background and have an income of Rp. 0- Rp. 1,000,000. When going on a tourist trip, the cost for the tourist trip is a maximum of IDR. 50,000. (2) The factors that significantly influence the demand for visits from Gumuk Kantong Beach with an error rate of 5% are the variables travel costs and age. Other visit demand factors that have no significant influence are the income variable. (3) Based on economic value calculations using

the Travel Cost Method approach, the consumer surplus value of Gumuk Kantong Beach per visit per person is Rp. 7,518. The economic value of Gumuk Kantong Beach per year is IDR. 1,195,384,554. This value shows that visitors still have the desire to maintain the sustainability of Gumuk Kantong Beach as a tourist location in Banyuwangi, East Java.

It is hoped that this research can be taken into consideration in formulating the development of Gumuk Kantong Beach, Banyuwangi. Gumuk Kantong Beach managers can use this research's consumer surplus as a reference in determining changes in entrance ticket prices. Apart from that, managers can set entrance ticket prices on weekdays and weekends to increase visitor targets. After obtaining an economic value of Rp. 1,195,384,554 it is hoped that visitors and management can maintain the surrounding environment so that it is clean and sustainable and does not result in a decrease in economic value. Managers can carry out developments such as adding attractions and facilities for visitors. Gumuk Kantong Beach management can increase promotions to attract the interest of people living around the tourist attraction and the wider community to visit Gumuk Kantong Beach. For further researchers, research can be carried out regarding the evaluation and marketing strategy of Gumuk Kantong Beach.

References

- Baraas, Abdillah, (2022). Garis Pantai Banyuwangi, Laboratorium Alam Kelautan Berkelas Dunia. <https://lautsehat.id/flora-fauna/abdillah/garis-pantai-banyuwangi-laboratorium-alam-kelautan-berkelas-dunia/>
- Fauzi. A. , (2014). Valuasi Ekonomi dan Penilaian Kerusakan Sumber Daya Alam dan Lingkungan. cetakan ke-1 Bogor:IPB pres.
- Fitriani, F. E. (2017). Valuasi Ekonomi Agrowisata Kampoeng Anggrek Di Dusun Sumberpetung Desa Sempu Kecamatan Ngancar Kabupaten Kediri Dengan Pendekatan *Individual Travel Cost Method*. [Skripsi]. Malang: Universitas Brawijaya.
- Hamzah, S. N., Nursinar, S., & Ahmad, N. F. (2022). *Tingkat Partisipasi Masyarakat Terhadap Pengelolaan Wisata Pantai Minanga Kabupaten Gorontalo Utara*. Jurnal Sosial Ekonomi Kelautan dan Perikanan, 17(1), 105-113
- Herminto, F. (2015). *Analisis Permintaan Objek Wisata Sungai Hijau di Kabupaten Kampar dengan Metode Biaya Perjalanan* (Doctoral dissertation, Riau University).
- Masniadi, R. (2021). Analisis Analisis nilai ekonomi objek wisata pantai balad kabupaten sumbawa barat: Nilai ekonomi objek wisata. *Nusantara Journal of Economics*, 3(02), 38-46.
- Haryanto, T & Mukaffi, Z, (2022). Dampak Sektor Pariwisata Terhadap Pertumbuhan Ekonomi di Kabupaten Banyuwangi. *TOBA: Journal of Tourism, Hospitality and Destination*, 1(2), 38-43.
- Putra, B. M. (2017). Valuasi Ekonomi Wisata Agro Wonosari Dengan Pendekatan *Individual Travel Cost Method (ITCM)* [Skripsi]. Malang: Universitas Brawijaya.
- Sugiyono, (2018). *Metode penelitian Kuantitatif*. cetakan ke-1, Alfabeta:Bandung.