

# Economic Valuation of Pantai Baru Bantul Regency using Travel Cost Method

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**Abstract:** This research is the application of the valuation of natural resources by using Travel Cost Method. This study aims to determine the economic value of Pantai Baru with travel cost method and to investigate the factors that affect the visits of Pantai Baru. Researchers collected data by interviews and questionnaires. Demand Function Pantai Baru Kabupaten Bantul was found based on the data that has been collected and processed. Based on the demand function, the researchers estimate the willingness to pay and calculate the consumer surplus. Pantai Baru was selected as the study object because Pantai Baru is a relatively new beach compared to other beaches in Yogyakarta, and it has the potential to be developed.

## 1 INTRODUCTION

Tourism sector is one of government's superior sectors in increasing the government income from either domestic tourists or foreign tourists. Indonesia has many tourism destinations which have a potential to be developed, for example Bali Island, Toba Lake, Raja Ampat, and many more. One of the tourism destinations in Indonesia is Yogyakarta which has various mesmerizing tourism objects including natural tourism, cultural tourism, and culinary tourism. Yogya has relatively new tourism object which has a potential to be developed named Pantai Baru.

Pantai Baru, one of tourism destinations in Yogyakarta, is located in Ngentak Area, Poncosari Village of the Sub-district Srandakan, Bantul Regency, and it is close to other beaches such as Pandansimo, Kuwaru, and Goa Cemara beach. Although it is still newly recognized, it has adequate facilities, for example food stalls, public toilet, parking lot, and praying house (mushola).

Pantai Baru is continuously developed as a natural tourist resort and also as technology based educational tourism with windmill as the electricity power source. The development is also focused on agrotourism, specifically on fishery and stock husbandry with 10 ponds and 150 sheds respectively. There is also a fisherman group which has approximately 96 members. By observing the

recent potential, Pantai Baru is still in progress as a tourism destination which could improve the economy of the society and raise the income of Bantul Regency. The improvement of Pantai Baru could be in the form of reorganized spots and improvement of the facilities to increase the interest of people to visit Pantai Baru. Based on the discussion above, we decided to do a research entitled 'Economic valuation of Pantai Baru Bantul Regency using travel cost method: an estimation of tourism object demand'.

This study was aimed to determine the economic value of Pantai Baru based on the cost analysis of visitor trip during their visit to Pantai Baru and to investigate the factors that affect visits to Pantai Baru.

## 2 MATERIAL AND RESEARCH METHOD

### 2.1 Economic Value

Value is a price given by an individual for a thing in specific time and place. Economic value is defined as the measurement of the maximum number of goods and services that an individual is willing to pay to get other goods and services. Formally, this concept is called willingness to pay towards goods and services from the natural resources and environment (Nurhayati et al.).

Suparmoko (2006) stated that there are two types of value of a region, utilization value and non-utilization value. Utilization value could be in the form of direct usage value, indirect usage value, and alternative value. Direct usage value is the value or benefit felt directly by an individual. Indirect usage value is the value or benefit gained indirectly from a particular region. Alternative value is an expected value of a natural resource in the future.

## 2.2 Demand for Goods and Services

The demand for good or service is influenced by several factors. According to Samuelson (2010), the factors that influence demand are the price of goods, income, tastes, and prices of other related goods / services.

- a. Prices negatively affect the demand for goods.
- b. Revenue has a positive effect on demand.
- c. Taste has a positive effect on demand.
- d. Price of other related items.

According to the theory above, the hypothesis of this research is:

H1: Income has a positive correlation towards the number of visits to Pantai Baru Bantul regency in the Special District of Yogyakarta.

## 2.3 Travel Cost Method

Garrod (2001) describes the concept of Travel Cost Method as an approach to estimating economic values related to ecosystems or locations for recreation. The basic concept of the Travel Cost Method is that the travel time and costs incurred by individuals to visit a tourism site reflect the "price" to access that location. Thus, the willingness of people to pay to visit tourism sites can be estimated based on the number of trips (visits) carried out with various travel costs, so it can be said that the amount of goods / services requested is determined by the estimated willingness to pay.

There are three approaches in the Travel Cost Method:

- a. Simple zone travel cost approach
- b. Individual travel cost approach
- c. Random utility approach

In this study, the researcher chose the individual travel cost approach to examine economic valuation of Pantai Baru Bantul Regency.

According to Nurhayati (2012), economic valuation or economic assessment is an effort to measure the quantitative value of goods and services

produced by specific natural resources. The economic valuation in this research was used to determine the economic value of Pantai Baru.

There were a number of variables used in this research to measure the economic value and this economic value is to estimate the tourism demand using Travel Cost approach. The variables included the number of visits to Pantai Baru, the cost spent to go to Pantai Baru, the distance of the visitors' house to Pantai Baru, and visitors' income.

The previous research with similar topic was used by the researcher as the reference in this study. One reference from the research by Nurhayati Samsudin about economic valuation of Bunaken National Park shows that the travel cost variable negatively affects the number of visits while income and age do not influence the visit quantity. It proved that travel cost has a reversed correlation with the visit quantity which means that the higher the travel cost, the lower the number of visits.

A similar research conducted by Yosefhie Maria about economic valuation of ecotourism of National Park of Sentarum Lake Kapuas Regency Hulu of West Kalimantan Province used travel cost zone approach and revealed that the biggest percentage of the visitors were from Kapuas Hulu. In other words, travel cost has negative correlation towards number of visits.

According to these research results above, the hypothesis is:

H2: Travel cost has a negative correlation towards the number of visits to Pantai Baru Bantul Regency the Special District of Yogyakarta.

Another research related to economic valuation was done specifically about economic valuation of tourism using travel cost method at Nglambor beach by Aditya Agung Pratama (2016). The result of the study denoted three statistically significant variables, travel cost, distance, and access variables. It shows that the number of visits to Nglambor beach is affected by travel cost, distance, and access variables.

According to this research result above, the hypotheses is:

H3: Distance has negative correlation towards the number of visits to Pantai Baru Bantul regency the Special District of Jogjakarta.

The researcher chose the convenience sampling method in collecting the data for simplicity and flexibility. There were 165 visitors from various background who were willing to be the respondents, and only 155 questionnaires were processed due to the incompleteness of the data given by 10

respondents. Sampling was conducted by doing survey multiple times to the research location.

### 3 RESEARCH RESULT

Statistic test results were divided into partial and simultaneous test. Partial test is to test the impact of each independent variable towards dependent variable while simultaneous test is to test the impact of all variables altogether towards the dependent variable. The researcher elaborated the partial test for each independent variable continued by simultaneous testing. Table 1 displays the result of double regression with the variables of income, distance, and travel cost as independent variable and number of visits as dependent variable.

Table 1.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.079	1.037		-.076	.940
Ln_Income	.009	.076	.010	.114	.909
Ln_Distance	-.169	.056	-.281	-3.007	.003
Ln_TC	-.097	.038	.250	2.565	.011

a. Dependent Variable: Ln\_NV

Analyzed using the SPSS program, the partial test on the income variable denoted the t count 0.114 and sig 0.909, which means that income do not have a correlation towards number of visits. Income do not influence the number of visits to Pantai baru since the visitors lived in a relatively close region.

The result of partial test on distance showed the t count -3,007 and sig 0.003. Using  $\alpha = 5\%$  the statistical test result showed that distance have a significantly negative impact towards the number of visits. It can be said that the further the distance to Pantai Baru location, the lower the frequency of visits.

Partial test result on the travel cost showed the t count 2.565 and sig 0.011 which indicated that the travel cost significantly has negative impact towards the number of visits. This result supports the previous research that travel cost negatively affects the number of visits.

The researcher also used SPSS to test the impact of all independent variables towards dependent variables (simultaneous test) and the result is displayed in Tabel 2.

Table 2.

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2.634	3	.878	3.574	.016 <sup>b</sup>
Residual	37.093	151	.246		
Total	39.727	154			

a. Dependent Variable: Ln\_NV

b. Predictors: (Constant), Ln\_TC, Ln\_Income, Ln\_Distance

F count of the simultaneous test result is clearly displayed on the table 3.574 with significance level 0.016, and it reveals that altogether the independent variable (income, distance, and travel cost) simultaneously has an impact on the number of visits to Pantai Baru. The value of R and R square are displayed in Table 3 below:

Table 3.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800 <sup>a</sup>	.640	.631	.28927

a. Predictors: (Constant), Ln\_TC, Ln\_income, Ln\_Distance

The R square 0.640 indicates that the variation of the number of visits to Pantai Baru described by the variables of income, distance, and travel cost is 64%. The rest or 36% is described by other variables not included in this model. It means that there are still some variables that could be used in this model for the future research.

From the result of regression, the regression equation model is as follows:

$$\text{Ln NV} = -0.079 + 0.009 \text{ Ln\_Income} - 0.169 \text{ Ln\_Distance} - 0.97 \text{ Ln\_TC}$$

where:

NV is the number of visits to Pantai baru

Income is the income of the visitors

Distance is the distance of the visitors' house to Pantai Baru

TC is the travel cost

### 4 DISCUSSION

From the three independent variables, there are two variables which have an effect on the number of visits, distance and travel cost. The other variable,

income, do not affect the number of visits. Therefore, it could be concluded: (1) Income did not affect the number of visits, The number of visits is not influenced by the income since the distance of the visitors' house was relatively close to the location of Pantai Baru. With the proximity of the location, the cost was not high, (2) travel cost has a negative effect on the number of visits. This result supports the the previous research that travel cost affects negatively the number of visits, and (3) Distance negatively affects the number of visits. Distance has a negative impact, which means the further the distance with Pantai Baru location, the lower the number of visits.

The researcher used the regression equation from the research result to determine economic value of Pantai Baru Bantul Regency. The regression equation is:

$$\text{Ln\_NV} = -0.079 + 0.009 \text{ Ln\_Income} - 0.169 \text{ Ln\_Distance} - 0.97 \text{ Ln\_TC}$$

The regression equation above specifically shows the demand function of Pantai Baru in the Bantul regency with NV as demand and independent variables (income, distance, and travel cost) as the factors influencing the demand.

To count the consumer surplus, the researcher used regression with the number of visits as the dependent variable and travel cost as independent variable while other variables besides travel cost were assumed to be fixed. The regression is displayed in the table below:

Table 4.

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.899	.214		18.227	.000
<sup>1</sup> Ln_TC	-.281	.019	-.767	-14.722	.000

a. Dependent Variable: Ln\_NV

The regression equation gained is  $\text{Ln\_NV} = 3.899 - 0.281 \text{ Ln\_TC}$ .

The demand function was used to yield the consumer surplus as economic value. Integral was used to count the consumer surplus per individual each year with the top limit using the highest travel cost and the bottom limit as the lowest travel cost. The highest cost was Rp1.010.000 and the lowest cost was Rp 2000 (cost of an entrance ticket).

The sum of the demand function integral is the consumer surplus per individual each year with the amount of Rp 504.706. To get the economic value, consumer surplus per individual was multiplied by the number of the visitors in 2016 which is 7.300 visitors. yielding the economic value of Pantai Baru in 2016 as Rp3.684.353.800.

## 5 CONCLUSION

The results of the study are: (1) The distance of the visitors' house with the location of Pantai Baru has a negative correlation towards the number of visits (tourism object demand), (2) The travel cost negatively impacts the number of visits: where the the cost is high, the frequency of visits is low, and (3) Income has no correlation with the number of visits, and it is proven in this research where visitors from any cluster of income could visit the tourism object.

### 5.1 Limitation

This study uses the Travel Cost Method. In the travel cost method, there are three approaches that can be used, namely, the approach of a simple travel cost zone, an individual travel cost approach, and a random utility approach. In this study, the researcher uses the second approach, namely the individual travel cost approach. The result from the three hypotheses formulated proved only two hypotheses. In addition, the coefficient of determination is 0.64, which means that the dependent variable variation of 64% is explained by independent variables. There are still other variables that can be tested for this study.

### 5.2 Suggestion

Based on the limitations of this study, for further research, researchers who are interested in researching this topic can use other approaches. In addition, the next research can add new variables that are predicted to influence the demand for tourism.

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