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The Impact of Visit Frequency on Kreo Cave Tourism Development

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Abstract

Kreo Cave is one of the tourist destinations in Semarang City in the form of nature reserve tours. Kreo Cave provides opportunities for the community to improve economic, social and cultural welfare. The existence of Kreo Cave and its tourism development has a very positive potential for various parties such as the government, the community, tourists so that Kreo Cave has the value of tourism potential that can support the development of Semarang City. Visitors to Kreo Cave experience an increase every year so that it can be said that tourism objects have developed. Therefore, this study conducts an economic assessment of the area of Kreo Cave which has undergone development. Based on these, the frequency of tourist visits can be analyzed to determine the direction of development of attractions. Tourism development can be seen using the Travel Cost Method (TCM) and Contingent Valuation Method (CVM) to determine the WTP (Willingness to Pay) value to see the development of Total Economic Value (TEV) tourism from Kreo Cave. This research produce total economic value (TEV) from the Kreo Cave of Rp. 463,392,708,190, - in 2015, Rp. 373,242,613,540, - in 2016 and Rp. 552,610,924,100 in 2017. These results indicate an increase in the value of TEV in Kreo Cave between 2015 and 2017.

Keywords: contingent valuation method, frequency of visits, Kreo Cave, total economic value and travel cost method

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1. Background

Kreo cave is one of the tourist destinations in the city of Semarang. The Kreo Cave Tourism Area is a 5.6-hectare forest area located in the hills (Mount Krincing) and the Kreo River valley, precisely in Hamlet Talun Kacang, Kandri Village, Gunung Pati District [1]. Kreo Cave is a cave that is used as a nature reserve tour because as a place to stay in Sunan Kalijaga when looking for teak wood to build the Great Mosque of Demak. Kreo Cave has a waterfall with clear water quality and is not dry in the dry season and there is a monkey ecosystem as a cave dweller. Kreo Cave has a more enchanting beauty with the land functioning at the bottom as a reservoir. Kreo Cave

provides community opportunities in improving economic, social and cultural welfare in the field of tourism. Tourism is one of the sectors that the government relies on to obtain foreign exchange apart from non-oil and gas income. The role of tourism in national development, in addition to being a source of foreign exchange earnings also contributes a lot to other fields. The existence of Kreo Cave and the development of tourism have the very positive potential for various parties such as the government, the community, tourists so that Kreo Cave has the value of tourism potential that can support the development of the City of Semarang. Utilization of opportunities for the development of attractions in an area is influenced by the frequency of visits from tourists visiting. Kreo Cave visitors have increased every year. The frequency of the Kreo Cave tourist visits in 2015 were 144,040 visitors, in 2016 there were 110,855 visitors and in 2017 there were 175,670 visitors (Manager of Kreo Cave). The increasing frequency of the visit of Kreo Cave attractions has a significant impact on the development of Semarang City, such as helping the community in improving economic, social and cultural welfare, bringing substantial foreign exchange to the region (PAD) and the country. Therefore, this study conducts an economic assessment of the area of Kreo Cave which has undergone development. Based on these, the frequency of tourist visits can be analyzed to determine the direction of the development of attractions. Tourism development can be seen using the Travel Cost Method (TCM) and Contingent Valuation Method (CVM) to determine the WTP (Willingness to Pay) value to see the development of Total Economic Value (TEV) tourism from Kreo Cave. The results of Total Economic Value (TEV) of the Kreo Cave can be utilized by the Tourism Office in developing these attractions so as to provide positive benefits for various parties such as governments, communities and tourists or visitors.

2. Methods

This study analyzes the effect of frequency of visits on the development of Kreo Cave using the Travel Cost Method (TCM) and Contingent Valuation Method (CVM) to determine the value of WTP (Willingness To Pay) given for tourism development and Total Economic Value (TEV).

2.1. Sampling

Sampling is a process used in statistical analysis in which a predetermined number of samples are drawn from a larger population. Sampling for the Travel Cost Method is

taking data on the number of visitors to the tourist attraction area while taking the sample on the Contingent Valuation Method is the population of Semarang City. Respondents used as Travel Cost Method samples are visitors who come at the time of data collection, while respondents who are used to sample Contingent Valuation Method are people who directly utilize the existence of tourist areas. The method used in sampling is Non Probability Sampling where the selected respondents are not the same.

2.2. Willingness To Pay (WTP)

Willingness To Pay (WTP) is a willingness for each individual or community to make payments or spend money to improve environmental conditions in accordance with the standards they want. Willingness To Pay is based on consideration of costs and benefits to be obtained by this consumer [2]. This term is contrary to Willingness To Accept Payment (WTA) or willingness to accept payment. Willingness To Accept Payment is the minimum amount that an individual or company is willing to accept to send goods or receive something that is not desired. A transaction occurs when the willingness to pay more than the market price [3].

2.3. Travel Cost Method (TCM)

Travel Cost Method (TCM) is one of the initial approaches used by environmental economists to estimate the demand for environmental benefits, namely by a method that uses travel costs instead of prices. Travel Cost Method is used to calculate the DUV of a particular area that has a unique visitor attraction. This method is based on the simple idea that if we want to find out how much value is being spent by people to achieve certain environmental conditions, we can ask them [2]. The demand for outdoor recreational analyzed using Travel Cost Method (TCM). According to Harold Hotelling (1931), this custom-based approach can be observed to create demand curves and determine the value of natural resources and the environment and to calculate the consumer surplus from natural resources and the environment that does not have a market through questions that focus on increasing travel costs as a substitute market [4]. The first assumption of the Travel Cost Method is that a visit to a natural recreation area is influenced by the cost of traveling to a recreation area where travel is a single trip. The second assumption, that all individuals will give the same reaction to an increase / decrease in travel costs and also to an increase / decrease in entrance fees to visit a recreation area [4]. Therefore, determining the economic value can be calculated based

on 2 simple techniques, namely the Travel Cost Method with a simple approach through the zone and the individual approach using most of the survey data. [5].

2.4. Contingent Valuation Method (CVM)

Contingent Valuation Method (CVM) is an assessment-based questionnaire technique in which Willingness To Pay (WTP) or Willingness To Avoid (WTA) is obtained directly from respondents in the field with certain question parameters. CVM is used in connection with non-market goods and specifically for environmental / resource goods. Therefore, hypothetical markets are defined for non-market goods and respondents are asked to determine WTP or WTA [6]. The method used to measure the value of non-use of resources and areas or the Value of Existence is done by direct interviews with people about the value or price they provide for commodities that do not have a market such as environmental goods.

2.5. Normality Test

Normality Test conducted aims to determine existing field survey data normally distributed and independent. Although the normality of a data is considered not too important but the existing data must be normally distributed. Normality test can be said to be an important thing because the normally distributed field survey data (samples) can be considered to represent the population. Normality test can be done using graphs and statistical tests.

2.6. Total Economic Value

Regional Economic Assessment can be carried out using the concept of Total Economic Value (TEV), where the TEV value is obtained from the total use-based economic value, namely UV (Use Value) and non-use-based economic value, namely NUV (Non-Use Value). Total Economic Value (TEV) is an aggregate of direct use value and indirect use value, and market value that can be used to measure the use value or non-market value which calculates the value based on non-utilization (Non Use Value), whether the value of existence, value the choice or value of inheritance depends on the natural resource / area to be valued outside the value of the property in the area being valued [2]. Regional Economic Value is seen based on the benefits of existence, the benefits

of tourism, the benefits of knowledge, the benefits of beauty, and the economic value of the region based on its function as a tourism provider.

3. Result and Discussion

TCM data contains respondents who came to visit and enjoy the beauty of a tourist area both from within and outside the city. TCM data characteristics consist of several variables, namely the frequency of visits (V), total cost (X1), age (X2), education (X3), income per year (X4), length of visit (X5) and alternative locations (X6) surveyed directly to visitors.

Table 1: Average Kreo Cave Variables.

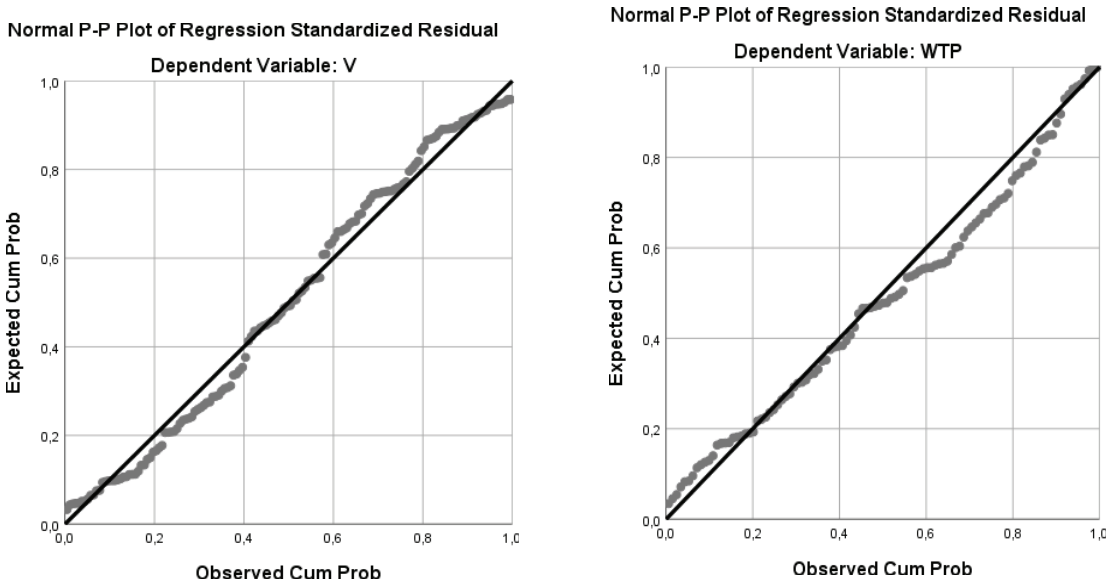
Variable	Average Variable Value of Kreo Cave
V	3,04
X1	176.747
X2	37,53333
X3	13,1
X4	38.401.333
X5	3,13333
X6	1,43333

CVM data contains respondents who benefit from the existence of a tourist attraction (parking attendants, security guards, traders and others). CVM data characteristics consist of several variables, namely contribution (WTP), existence (X1), age (X2), education (X3), number of families (X4), income per year (X5), benefits (X6), interests (X7), conversions (X8) and participation (X9) surveyed directly to the target respondents.

Table 2: Average Kreo Cave Variables.

Variabel	Rata-Rata Nilai Variabel Kreo Cave
WTP	1,65420
X1	4,64485
X2	44,84112
X3	9,34579
X4	4,11214
X5	23.099.065,42
X6	4,59813
X7	4,58878
X8	4,54205
X9	4,51401

This research has conducted a normality test on field survey data so that the test results can be concluded that the data has been normally distributed. Normally distributed data can be seen based on the distribution of residues that spread in the diagonal direction and diagonal lines so that it can be said that the data is normally distributed. However, if the residue spreads away from the diagonal line and not in the direction of the diagonal line, it can be said that the data is not normally distributed. The normality test is done based on the analysis of histogram charts and normal probability plot charts and statistical tests with Kolmogorov Smirnov (1-sample K-S). The results of the normality test can be seen in Figure 1.



(a) (b)

Figure 1: Graph of Kreo Cave TCM Normality Test (a), Graph of Kreo Cave CVM Normality Test (b).

Based on testing data using the normality test results obtained Asymp.Sig (2- tailed)> 0.05 is equal to 0.200 in the TCM Kreo Cave while 0.088 in the CVM Kreo Cave. These results can be concluded that H 0 can be accepted if the residual data are normally distributed and the data spread along the diagonal line. Based on the results of the output in Figure 1 shows that the data are normally distributed. This is shown in the data (points) that are scattered around the diagonal and in the diagonal direction.

The number of times the number of tourist visits has increased visits to a tourist attraction will certainly be different each year. Similarly, the frequency of tourist visits to the Kreo Cave attractions. Changes in the number of visitors or the frequency of visits in 2015-2017 can be seen in Table 3.

The number of visitors to Kreo Cave can be concluded that there has been a change between years, the increase and decrease in the number of visitors. The number of

TABLE 3: Frequency of visits.

Year	Visitors
2015	144,040
2016	110.855
2017	175.670

visitors in 2015 were 144,040 visitors, in 2016 there were 110,855 visitors and in 2017 there were 175,670 visitors. Based on the three years above, the highest number of visits was in 2017 and the lowest number of visits in 2015. There was a decrease in the number of visitors in 2016 because in that year access roads to Kreo Cave were in the process of being improved, hampering the mobility of tourists who wanted to visit (the possibility of choosing other attractions with easier access).

The economic value of the area is assessed based on the value of benefits from the benefits of existence, the benefits of knowledge providers and the benefits of beauty and the economic value of the region based on the function of the tour provider. The value of the direct use of the Kreo Cave tourist area is calculated based on the tourism object provider area from the community's assessment of the travel costs incurred to visit the Kreo Cave tourist area. The method of assessing the existence of this area is carried out using the TCM (Travel Cost Method) technique.

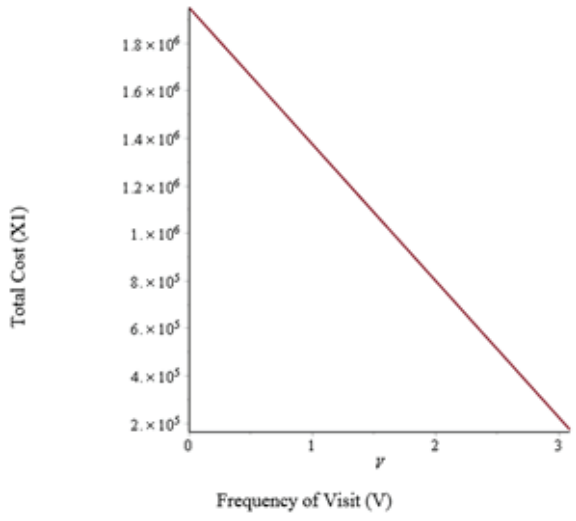


Figure 2: The Kreo Cave Request Curve.

Based on the demand curve of the Kreo Cave in Figure 2 shows that the greater the frequency of visits, the higher the costs will be incurred by visitors. Based on the demand curve above, the Consumer Surplus amount is Rp. 2,749,931.

Existence Value (EV) is a non-use value or Non-Use Value (NUV) obtained by the CVM technique where the method is done by calculating the value using the benefits of the

existence of a particular area according to the surrounding community. Calculation to get the existence value (EV) of the Kreo Cave by entering the average of independent variables (X1, X2, X3, X4, X5, X6, X7, X8, X9), the calculated WTP value is 1.582316489, determining the real WTP location based on the results of the calculation of WTP count on the provisions of a predetermined range by knowing the minimum WTP of Rp. 25,000 and a maximum WTP of Rp. 50,000 so that the real WTP is obtained for Rp. 39,557.

TABLE 4: Frequency of visits.

Year	Direct Uses value (DUV)	Existence Function Value (EV)	Total Economic Value of Kreo Cave
2015	Rp. 396,100,189,900,-	Rp.67,292,518,290,-	Rp. 463,392,708,190,-
2016	Rp. 304,843,700,000,-	Rp.68,398,913,540,-	Rp. 373,242,613,540,-
2017	Rp. 483,080,535,600,-	Rp.69,530,388,500,-	Rp. 552,610,924,100,-

Visualization of Total Economic Value of Kreo Cave can be seen in Figure 3. Total Economic Value of Kreo Cave is obtained based on the calculation of the number of Direct Use Values (DUV) obtained from TCM calculations and the Existence Value (EV) obtained from CVM calculations.

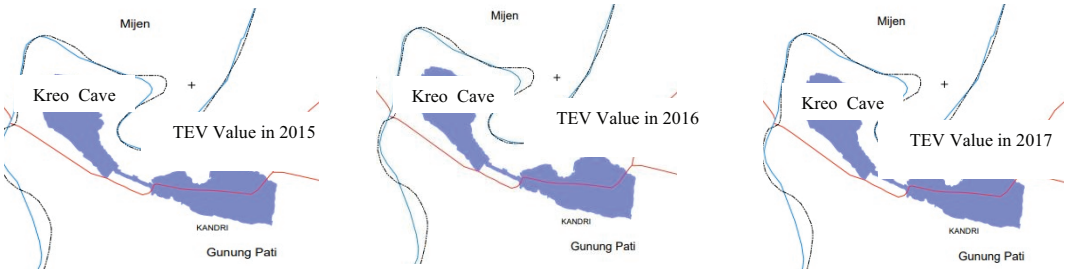


Figure 3: Visualization of the Total Economic Value of the Kreo Cave (a) TEV Value in 2015 (b) TEV Value in 2016 (c) TEV Value in 2017.

Visualization of the results of the Total Economic Value of the Kreo Cave was obtained from the sum of DUV and EV. The size of the regional TEV results obtained value of Rp. 463,392,708,190 in 2015, Rp. 373,242,613,540, in 2016, Rp. 552,610,924,100 in 2017.

The 3D graph in Figure 4 shows that in 2015 decreased to 2016 and increased again in 2017. The population of 1,701,114 million people in 2015 and 1,729,083 million in 2016 to 1,757,686 in 2017, the frequency visited 144,040 visitors in 2015 and 110,855 visitors in 2016 to 175,670 visitors in 2017 and the region's total economic value of Rp. 463,392,708,190 in 2015 and Rp. 373,242,613,540 in 2016 to Rp. 552,610,924,100 in 2017.

Utility surveys have been carried out in Kreo Cave tourism with a radius of 1.5 kilometers based on SNI 03-1733-2004 on the procedures for urban environmental

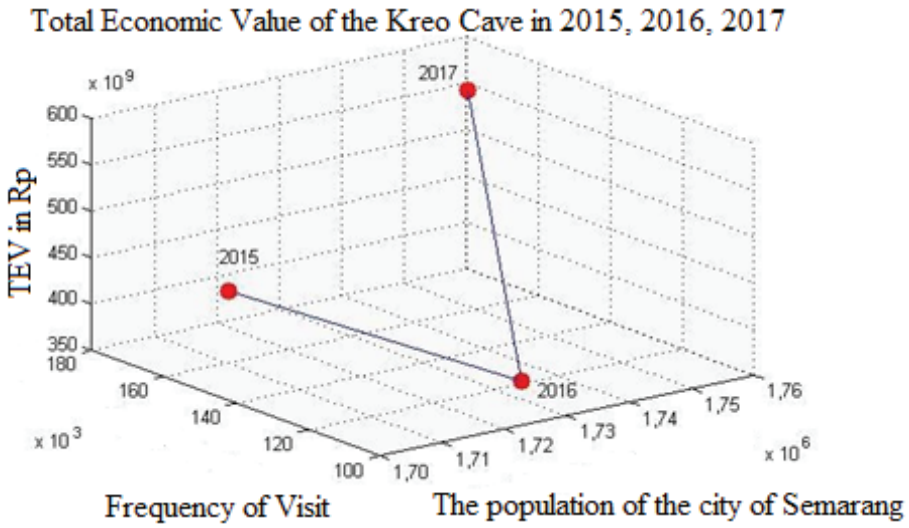


Figure 4: 3D graphics of Population, Frequency and TEV in 2015, 2016, 2017.

planning. Classes in this study are divided into 4 classes, namely government facilities and public services, education and learning facilities, trade and commerce facilities, and cultural and recreational facilities. The survey results obtained the distribution of utilities around Kreo Cave, among others:

1. Government Facilities and Public Services as much as 1 utility.
2. Educational and learning facilities as much as 2 utilities.
3. Trade and Commerce Facilities as many as 34 utilities.
4. Culture and Recreation Facilities as much as 5 utilities.

Based on the survey it can be concluded that there is still a lack of utility found around Kreo Cave. This can have an impact on tourists visiting tourist attractions. The addition of public facilities at tourist attractions can increase tourist visits in Kreo Cave. Based on tourist visits in Kreo Cave which increased from 2015 to 2017, but in 2016 there was a decline in tourist visitors due to some improvements in infrastructure. Based on the Total Economic Value between 2015 and 2017 has increased, but in 2016 has decreased. Based on the frequency of tourist visits and the value of the Total Economic Value it can be concluded that an increase in the frequency of visits can increase the value of the Total Economic Value so that Kreo Cave tourism is developing.

4. Conclusions

Based on this study, the number of visitors in 2015 was 144,040 visitors, in 2016 there were 110,855 visitors and in 2017 there were 175,670 visitors. The frequency of Kreo Cave tourism visits tends to increase but in 2016 it has decreased due to infrastructure

improvements. Total Economic Value (TEV) of the Kreo Cave is Rp. 463,392,708,190, - in 2015, Rp. 373,242,613,540, - in 2016 and Rp. 552,610,924,100 in 2017. The value is obtained from the sum of the direct use value (DUV) and the existence value (EV). The factors that influence the frequency of visits to Kreo Cave are the total cost, age, length of visit and alternative location. This study can be concluded that increasing the number of visitors to a tourist attraction can have a positive impact on tourism development.

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