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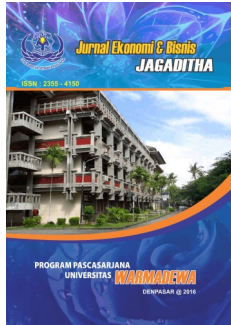
Economic Valuation of Tourist Attractions with Travel Cost Approach

Author Name(s): Indah Susilowati[1]*, Cici Musliha[1], Zulfikar Al-Hafidz[1], Sigit Prabowo[1], Dwi Putri Wulan Sari[1], Raditya Ardana[1]

1. Faculty of Economics and Business, Diponegoro University, Indonesia

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*Corespondence regarding this article should be addressed to:
Indah Susilowati
Email: prof.indah@gmail.com

Economic Valuation of Tourist Attractions with Travel Cost Approach

Indah Susilowati[1]*, Cici Musliha[1], Zulfikar Al-Hafidz[1], Sigit Prabowo[1], Dwi Putri Wulan Sari[1], Raditya Ardana[1]

1. Faculty of Economics and Business, Diponegoro University, Indonesia

Abstract—Umbul Sidomukti is an excellent tourist area with several tourist objects. Umbul Sidomukti tourism was designated as a tourist attraction because the area has a potential economic value from the tourism sector. This study aims to determine the economic value of the Umbul Sidomukti tourist attraction based on the travel cost method (TCM). This study uses the travel cost method based on primary data from in-person interviews and online surveys with 105 visitors visiting the Umbul Sidomukti tourist area. The study results show that the relationship between travel costs and distance and the number of tourist visits has a ceteris paribus negative relationship following tourism demand. Service and income variables have a positive effect that is not significant. Meanwhile, the potential economic value of the Umbul Sidomukti tour is estimated at Rp. 28,142,763,075 per year. This research can be used to develop natural tourism objects using the travel cost approach, especially the Umbul Sidomukti tourism object.

Keywords: economic value; travel cost; umbul sidomukti tourism; semarang regency

Introduction

The tourism sector plays an essential role in the Indonesian economy. Apart from contributing to state revenues in the form of foreign exchange, development in the tourism sector can encourage economic growth and improve people's welfare. In this case, it can increase employment opportunities and income (O. A. Matthew et al., 2021; Widiastuti et al., 2021). In 2017, the contribution of tourism to Indonesia's GDP was IDR 536.8 trillion, or 4.1% of Indonesia's total GDP. Tourism provides 12.7 million jobs, representing 10.5% of total employment. Tourism receipts reached IDR 200 billion, and this sector generally outperformed Indonesia's economic growth. In 2019, tourism contributed 4.97 percent of Indonesia's GDP (Zulvianti et al., 2022).

The tourism sector in Indonesia is a major contributor to the economic progress of the country and the people of Indonesia (Zulvianti et al., 2022). The tourism sector generates positive growth for a country and contributes to the output of tourism destinations. This sector provides many opportunities (Ngoc et al., 2023). Countries with fewer opportunities have grown in recent years as tourism and investment opportunities increase due to tourism (Pulido-Fernández et al., 2019).

Indonesia has much promising tourism potential (Singgalen et al., 2019). Tourism in Indonesia is diverse and has its beauty; there is natural, culinary, shopping, and educational tourism, which attracts foreign and domestic tourists to every destination in Indonesia (Ratnasari et al., 2021). Every province in Indonesia has the potential for natural and cultural wealth, the principal capital for developing the tourism sector (Kemenparekraf, 2022), including Central Java Province (Fahmi, 2021). One of the famous tourist objects in Central

*Correspondence regarding this article should be addressed to:
Indah Susilowati, Diponegoro University, Indonesia.
Email: prof.indah@gmail.com

Java is Umbul Sidomukti.

Umbul Sidomukti is an excellent tourist area with several tourist objects. The types of tourist objects that exist are, first, the Natural Swimming Park, where the water comes directly from the Ungaran mountain springs, and there are various kinds of rides and other facilities in it, including camping grounds, flying fox, horse riding, ATVs, archery and so on. Second, Pondok Wisata or resorts with large capacity that can be used for families or groups. Third, *Pondok Panorama*, a villa in Umbul Sidomukti with views of 5 mountains. Fourth, Pondok Kopi is a place for tourists to enjoy the warmth of a cup of coffee while looking at the beautiful natural scenery. In addition to the four main tourist objects of Umbul Sidomukti, some facilities support tourism activities, such as Pondok Lesehan, Pondok Panorama, places to eat, flower gardens, parking lots, toilets, mosques, places for souvenirs typical of Umbul Sidomukti, and others.

Umbul Sidomukti tourism was designated as a tourist attraction because the area has a potential economic value from the tourism sector. Identify tourism demand, and it can be based on the point of view of the distance traveled to get to tourist sites.

The pattern of demand for distance has been expanded in the context of tourism through the following characteristics: (1) tourism demand peaks when it is close to the origin of tourists; (2) demand for travel distances does not necessarily decrease within a certain distance from tourist origins and (3) tourist decision-making takes into account 'pull factors such as destination attractiveness as well as distance (i.e., travel time and money) (Yhee et al., 2023). Testing the validity of the Travel cost analysis that has been done before can be done using least cost path analysis (Yhee et al., 2023), simultaneous equation models (Acharya et al., 2023; Eugenio-Martin & Inchausti-Sintes, 2016), dynamic regression (Yousaf et al., 2023), and confirmatory factor analysis (Acharya et al., 2023). So this study uses regression analysis (ordinary least squares - OLS) to add to the research study on tourist travel costs.

The variables in the previous study were closely related to the perception of distance requested by travelers (Jala & Nandagiri, 2015; Knoche & Ritchie, 2022). Aspects of accessibility to an area as one of these reasons. Easy and inexpensive access to a destination is a prerequisite for its tourism development; in this case, the emergence of low-cost airlines has increased accessibility to many tourist destinations (Vergori and Arima, 2022). In addition, there are several reasons related to the tourist areas visited: a review of goals (Berhanu and Raj, 2020), travel costs (including costs incurred during tourist trips) (Vergori and Arima, 2022), motivation (Eugenio-Martin & Inchausti-Sintes, 2016), tourism attractiveness and risks (Lee et al., 2022). Therefore, the overall cost of travel used by tourists and the ease of tourism accessibility is important for identifying tourism demand patterns.

The correct measurement to measure the demand and economic value of Umbul Sidomukti tourism can use the economic valuation method, namely the travel cost method (TCM). TCM is used to generate demand models, while the concept of consumer surplus is used for value determination and comparison (Matthew et al., 2019). According to Salma & Susilowati (2004), the TCM method predicts the economic value of tourist areas based on the assessment given by each individual or community for the invaluable enjoyment (in Rupiah) of the costs incurred to visit a tourist attraction, both opportunity cost and direct costs incurred such as transportation costs, consumption of food, drinks, hotels, entrance tickets and so on.

Based on the region's potential, measuring economic value through the Travel Cost approach is also necessary. Economic valuation plays an important role as a comprehensive instrument in providing a price assessment of the existence of goods and services in tourism in Umbul Sidomukti (Mahakena et al., 2021). Based on previous studies, travel costs, consumer satisfaction with services, and income affect the number of visits (Egan et al., 2022; Jala & Nandagiri, 2015; Knoche & Ritchie, 2022). Therefore, this research aims to find out what variables can affect the number of visits to the Umbul Sidomukti tourist attraction

and to find out the economic value of the Umbul Sidomukti tourist attraction based on the travel cost method (TCM).

Concept and hypotesis

Variable Measurement of Travel Cost

The travel cost variable was chosen because travel costs represent prices in the TCM model. Travel costs are generally negatively related to the number of tourist visits. The higher the travel costs a person must incur, the fewer the number of visits a person has to the tourist attraction (Yhee et al., 2023). Because generally, someone will prefer a tourist attraction that costs less. This variable is obtained from all travel costs incurred by visitors to the Umbul Sidomukti tourist attraction. The travel costs consist of round-trip gasoline costs, toll entrance fees, consumption costs during the trip, other costs during the journey, parking fees, ticket fees, helmet deposit service fees, consumption costs while at the tourist attraction, and costs for rides at the object. Tours, documentation fees, and other costs while at the tourist attraction. All costs are calculated on a per-person basis. The unit of travel cost variable is Rupiah. The travel cost variable can be formulated using equation 1 (Aryanto & Mardjuka, 2005; Mohamed et al., 2021; Winarngsih, 2021).

$$
\begin{aligned}
trav\ cost\ =\ & \left(\frac{total\ gasoline}{number\ of\ groups}\right) + \left(\frac{fee\ toll}{number\ of\ groups}\right) + cost\ consumption\ on\ trip \\
& + other\ cost\ on\ trip\ + \left(\frac{parking\ fee}{number\ of\ groups}\right) + fee\ service\ tip\ helmet \\
& + fee\ ticket\ entrance\ + costs\ consumption\ at\ tourism\ object \\
& + other\ other\ costs\ at\ tourism\ object
\end{aligned}
$$

Measurement of Service, Income, and Distance Variables

The service variable is measured by calculating the average satisfaction value from the five service quality aspects. The quality of these services consist of the affordability of ticket prices, the cleanliness of the tourist attraction, the completeness of the facilities provided by the manager of the tourist attraction, the ease of access to the road to the tourist object, and the quality of the scenery from the tourist attraction. These five aspects of service quality were calculated using a five-point Likert scale, in which respondents were asked to rate the quality of the five service quality aspects of the Umbul Sidomukti tourist attraction with numbers. Number 1 indicates that the quality of the service aspect is inferior, while number 5 means that the service aspect is perfect (see Equation 4) (Aryanto & Mardjuka, 2005; Mohamed et al., 2021; Winarngsih, 2021).

The income variable is measured by asking about the respondents' monthly income. If the respondent is a student or a student who has not worked, then the income is proxied by the amount of pocket money the respondent receives each month. The unit for variable income is Rupiah. Meanwhile, the distance variable is measured using the shortest distance between the origin of the visitor's area and the location of the Umbul Sidomukti tourist attraction. The distance variable uses km units.

Hypothesis

Ho: Travel Cost Variables, Consumer Satisfaction with Services, and Consumer Income do not affect the Number of Visits

Ha: Travel Expense Variables, Consumer Satisfaction with Services, and Consumer Income affect the Number of Visits

Method

This research was carried out at the Umbul Sidomukti tourist attraction, more precisely at the foot of Mount Ungaran, Somukti Jimbaran Village, Bandungan District, Semarang Regency, Central Java, with an area of Umbul Sidomukti itself, which is around 32 hectares with an altitude of 1,200 meters above sea level.

This study uses primary data and secondary data. Primary data was obtained by conducting direct interviews using questionnaires and online with the help of Google Forms. Meanwhile, secondary data was obtained from the publication of the Central Bureau of Statistics for Semarang Regency. The research sample was based on the accidental sampling method, namely samples selected by chance or accidentally met at the Umbul Sidomukti tourist attraction (Etikan, 2016). The sample used in this study amounted to 105 tourists. Most tourists were interviewed in several locations, such as counters, triangle rides, information centers, cafeterias, swimming pools, and play areas at the Umbul Sidomukti tourist spot. This research was conducted in November 2022.

The sample characteristics in this study were based on gender, age, area of origin, distance, length of education, occupation, income, status, type of vehicle, and the number of visits to Umbul Sidomukti with a accidental sampling method. The sample characteristics in this study are expected to provide more apparent study results to analyze the reasons for selecting the tourist areas visited by respondents.

This study uses the TCM method. TCM is specifically designed to estimate natural resources for recreation (Leh et al., 2018), making TCM the best method for this research. The reason for using TCM is that its method is consistent with demand theory. In TCM, the dependent variable is the number of individual visits to tourist attractions in the past year. At the same time, the independent variable is the cost variable which is described as the cost of personal trips to the tourist attraction. The second reason, in the TCM method, other demand-determining variables, such as demographic variables, can be added to the independent variables (Solikin et al., 2019). Thus, the research conducted will produce a more representative model.

The TCM method uses the costs incurred by individuals or groups who travel from their homes to their destinations as a proxy for travel costs (Loomis & McTernan, 2014). This method can produce two main components: travel costs and the number of trips. Travel costs and the quantity of these trips will be regressed to obtain the demand function of the Umbul Sidomukti tourist attraction. Next, the resulting demand function will calculate consumer surplus and economic valuation. This is based on several previous studies which state that economic valuation can be calculated by multiplying consumer surplus against the total number of visitors for one year, with the form of model specifications in Equation 1 (Aryanto & Mardjuka, 2005; Mohamed et al., 2021; Winarngsih, 2021).

$$V_i = f\ (TC_i X_i) \qquad (1)$$

Where:

V: the number of visits made by individuals to tourist objects

TC: travel costs incurred by individuals to visit tourist attractions

X: All the factors that determine an individual's visit

The regression method used in this study is multiple linear regression with the specification that the number of visits to the Umbul Sidomukti tourist attraction is influenced by the overall travel costs of visitors (round-trip transportation, consumption, parking, entrance tickets, rides, documentation, etc.), service quality at the Umbul tourist attraction. Sidomukti (ticket prices, quality of cleanliness, completeness of facilities, ease of access roads, views), visitor income per month, and the shortest distance of the visitor's house to the tourist attraction. This regression test will be carried out using the R-Studio software

version 2022.07.1. Model specifications can be seen in equation 2 (Aryanto & Mardjuka, 2005; Mohamed et al., 2021; Winarngsih, 2021).

$$logsumvisit_i = \beta_0 + \beta_1 travcost_i + \beta_2 service_i + \beta_3 income_i + \beta_4 distance_i + u_i$$

Where:

Sumvisit : The number of visits per individual who came to Umbul Sidomukti

Travcost : total round trip cost (Rupiah)

Service : quality of service at the Umbul Sidomukti tourist attraction (Index)

Income : visitor income per month (Rupiah)

Distance : the distance of the visitor's house to the tourist attraction (km)

u   : error

β   : estimated coefficient

Result And Discussion

Demographic Charasteristic

The majority of respondents are unmarried (93.3%). This is also related to the respondents who mostly go to the Umbul Sidomukti tourist area with their friends (71.4%). For the vehicles used, most respondents used motorbikes (66.7%) on their way to Umbul Sidomukti, where 50.5 percent of respondents visited the tourist area of Umbul Sidomukti for the first time. Furthermore, to see the characteristics of the respondents in this study can be seen in Table 1.

The survey showed a nearly equal distribution between the participating men (54.3%) and women (45.7%). Most respondents (93.1%) are aged between 17 to 30 years. The highest portion of respondents came from Semarang (58.1%), whereas other respondents tended to be scattered from various regions of origin. Most respondents had at least 13 to 16 years of education (74.3%). This is also in line with most respondents who are still students (70.5%). For monthly income, the majority of respondents earn between Rp. 1,000,001.- up to Rp. 3,000,000,- (61%).

Table 1. The demographic profile of the respondents (n=105)

Characteristics		Frequency	Percentage (%)
Gender	Man	57	54,3
	Woman	48	45,7
	17 – 20 years	54	51,1
	21 – 30 years	44	42
Age	31 – 40 years	3	2,9
	41 – 50 years	2	2
	≥ 51 years	2	2
	Semarang city	65	61,9
	Semarang Regency	5	4,8
	Grobogan District	8	7,6
Place of Origin	Demak Regency	5	4,8
	Jepara Regency	4	3,8
	Other	18	17,1

Distance	0 – 50 km	73	69,5
	51 – 100 km	20	19,1
	100 – 150 km	7	6,7
	More than 150 km	5	4,8
Years of Education	0 – 6 years	0	0
	7 – 9 years	2	1,9
	10 – 12 years	24	22,9
	13 – 16 years	78	74,3
	17 – 18 years	1	1
Work	Student	74	70,5
	Employee	7	6,7
	Freelancing	4	3,8
	Student	4	3,8
	Self-employed	3	2,9
	Other	13	17,3
Income	≤ Rp. 1.000.000	33	31,4
	Rp. 1.000.001 - Rp. 3.000.000	64	61
	Rp. 3.000.001 - Rp. 6.000.000	5	4,9
	≥ Rp. 6.000.001	3	2,7
Marital status	Not married yet	98	93,3
	Already/Ever Married	7	6,7
Vehicle	Car	35	33,3
	Motorcycle	70	66,7
Number of Visits in the Last 1 year	One time	53	50,5
	Two times	20	19
	Three times	13	12,4
	Four times	9	8,6
	Five times	3	2,9
	≥ 6 times	7	6,7

Respondent's Travel Characteristics

The number of visits is the dependent variable in this study. The results showed that the majority of respondents visited for the first time (50.5%), while for the second time (19%), and for the third time (12.4%) in 2022. The average repeat visit to Umbul Sidomukti in 2022 was 2.32 per person (in Table 2).

Table 2. Descriptive analysis of travel costs

Variable	Mean	Median	Standard Deviation	Min	Max
Number of Visits (2022)	2.32	1.00	2.12	1	13
Travel costs (Rupiah)	99805.04	63500.00	99729.41	12064	516250

The travel cost for a trip to Umbul Sidomukti ranges from Rp. 3000 and 1000,000 per activity. As many as 73.3% spent less than Rp. 100,000 for activities such as entrance tickets, parking fees, meals, and luggage storage services. Meanwhile, 16.1% spent their money ranging from Rp. 100,001 – Rp. 200,000 for gasoline for 4-wheeled vehicles (cars).

Table 3 also shows that most respondents visited with the main aim of refreshing (36.19%), followed by the second and third most purposes, namely to fill their vacation time and travel (20.95%). Based on the visit, of course, we will bring out the preferences of each respondent. Some things that respondents liked about the Umbul Sidomukti tour were the scenery (58.10%), cool air (18.10%), and rides for tourist objects (9.52%).

Table 3. Travel characteristic statistics

Variable	Means	Frequency	Percentage (%)
Number of Visits in the last 1 year	One time	53	50.5
	Two time	20	19
	Three-time	13	12.4
	Four-time	9	8.6
	Five-time	3	2.9
	≥ 6 time	7	6.8
Travel costs (Rupiah)	0 – 100.000	77	73.33
	100.001 – 200.000	17	16.19
	200.001 – 300.000	5	4.76
	300.001 –400.000	2	1.90
	400.001 – 500.000	1	0.95
	≥ 500.000	2	1.90
Purpose of visit	Refreshing	38	36.19
	Take vacation time	22	20.95
	travel	22	20.95
	Play	10	9.52
	Coursework	5	4.76
Favorite things	View	61	58.10
	Cool air	19	18.10
	Attraction rides	10	9.52
	Atmosphere	8	7.62
	Etc	7	6.67

Characteristics of the Trip

Service quality measures respondents' perceived satisfaction with selected service quality at Umbul Sidomukti Tourism. This is because the terrain is difficult for vehicles to pass. The average respondent in this study is satisfied with all attributes, but there is an aspect that has little satisfaction, namely road access (3.19). This is because the terrain is difficult for vehicles to pass. The incline and narrow road width are also obstacles to getting to the Umbul Sidomukti Tourism Area. However, even though road access is difficult, it pays off when visitors get to the top and see the sights directly in the Umbul Sidomukti Tourism Area. Tourist satisfaction with the sights of tourist attractions ranks at the top, namely as many as 4.77; this is assessed because Umbul Sidomukti presents a charming and beautiful panorama. At the top of Umbul Sidomukti, visitors can enjoy the beautiful view of Mount Ungaran with a light mist and cool and fresh air; far from the city center and crowds, so it is suitable as a place to unwind, refresh, or have a vacation with family or friends.

Table 4. Tourist Satisfaction with Service Satisfaction

Variable	Mean	Median	Min	Max
Tourist satisfaction with ticket prices (ticketq)	4.13	4.00	2.0	5
Tourist satisfaction with the cleanliness of tourist objects (sanitationq)	4.26	4.00	3.0	5
Tourist satisfaction with the complete-ness of the facilities (facilityq)	4.26	4.00	2.0	5
Tourist satisfaction with road access (streetq)	3.19	3.00	1.0	5
Tourist satisfaction with the view of the tourist attraction (landscapeq)	4.77	5.00	3.0	5

Classical Assumption Test

To produce the best linear and unbiased estimators, the model will be evaluated to determine whether it meets or does not meet the classical data cross-section assumptions. The test results are in Table 5. First, the model was tested using the Jaque-Bera, and the Shapiro tests to see the residual data distribution. This can be seen from the p-value, which strongly accepts the null hypothesis from the Shapiro test or the Jarque Bera test.

Second, the model is tested using Variance Inflation Factors (VIF) to find out whether there is a perfect correlation between the independent variables. From the tests performed, the results show that there are no perfect multicollinearity problems in the model. Third, the model is tested using the Breusch-Pagan test and the White test to determine whether the error variance is constant for each explanatory variable value (Gujarati and Porter 2009). From the results of the Breuch-Pagan test that has been carried out, the result is that the null hypothesis of the Breusch-Pagan test is strongly rejected. This means that the error variance in the model is not constant, and there are symptoms of heteroscedasticity. Therefore, the White robust standard error will be used to correct the error variance in the model. Fourth, the Durbin-Watson test will be used to see whether there is a correlation between the independent variables. It was found that the null hypothesis from the Durbin-Watson test was accepted because the value of dU < DW < 4dU (1.7617 < 1.7736 < 7.0468). This means there are no autocorrelation problems between the independent variables in the model.

Table 5. Classical Assumption Test

Category	Estimasi	Hasil
Normality test	shapiro test	0,00008788
	jarque-bera test	0,2257
Variance Inflation Factor	travcost	1,018381
	service	1,079912
	income	1,068426
	distance	1,052798
Homocedasticity test	Studentized Breusch-Pagan test	0,04841
	White test	0,01085
Durbin Watson test	DW	1,7736
	dL	1,6038
	dU	1,7617
	4dU	7,0468

Multiple Regression

After the model has been evaluated against the classical assumptions for data cross-sections, a multiple regression test will be performed. From Table 6, the coefficient of determination (R-Square) explains that all explanatory variables can explain 14.32% of the number of visits per year.

The results of multiple regression analysis are shown in Table T. The dependent variable used is the number of visits to the Umbul Sidomukti tourist attraction by individuals during 2022, while the explanatory variables used are price (travel cost), demographics (income and distance), and consumer perceptions (service).

Of the three explanatory variables used, only the travcost and distance variables were significant at the 95% confidence level. Meanwhile, as explained by the income variable, consumer satisfaction, and income did not affect the number of visits. The negative coefficient on the travcost variable indicates that if the travel costs incurred by a person to visit the Umbul Sidomukti tourist attraction increase, the number of tourist visits to the tourist attraction will decrease, ceteris paribus. This follows the theory of demand, which explains that quantity will be inversely proportional to price. The negative coefficient on the travcost variable also indicates that the demand curve for the Umbul Sidomukti tourist

attraction has a downward slope from the top left to the bottom right.

Consumer satisfaction with services at the Umbul Sidomukti tourist attraction shows an insignificant number at the 95% confidence level for the number of individual visits in 2022. However, this variable has a negative coefficient. That is, an increase in consumer satisfaction with services at the Umbul Sidomukti tourist attraction will reduce the number of their visits. This is, of course, different from the theory. Because someone should increase the number of their visits if their satisfaction with the services the tourism manager provides increases. However, this study showed the opposite result. This is likely because individuals with a large number of visits (more than 1) tend to be more critical of the services provided by tourism managers. So that the value of satisfaction they will give will be relatively lower. In contrast, individuals visiting the Umbul Sidomukti tourist attraction for the first time tend to give relatively higher service ratings.

Furthermore, the regression results found that income positively correlates with the number of visits. These results are similar to research conducted Mohamed et al (2021), where individuals with high incomes tend to increase their tourism activities. Even so, the income variable does not significantly impact the number of visits per year because its significance value is still above 5% alpha. Finally, the distance variable significantly negatively affects alpha 5%. This means an increase in the distance from a visitor's home will hurt the number of visits. Rationally, individuals will prefer tourist attractions closer to their home or area of origin. Closer distances will also result in lower travel costs to increase the number of visits.

The regression analysis results in Table 7 also explain that the travel cost and distance variables support previous studies (Jala & Nandagiri, 2015; Knoche & Ritchie, 2022), where there is a negative relationship to tourism demand by tourists. Thus, the more costs and distances visitors travel, the more demand will decrease. This follows the theory of demand, which explains that quantity will be inversely proportional to price. The negative coefficient on the travcost variable also indicates that the demand curve for the Umbul Sidomukti tourist attraction has a downward slope from the top left to bottom right (De Siano & Canale, 2022).

The following variables are income and services, which have had a positive effect in previous studies (Knoche and Ritchie, 2022; Mohamed et al., 2021). However, these variables were not significant in this study. Supposedly, individuals will increase the number of their visits if their satisfaction with the services provided by tourism managers increases (Jala and Nandagiri, 2015). However, this study showed the opposite result. This is thought to occur because individuals with a large number of visits (more than 1) tend to be more critical of the services provided by tourism managers. So, the satisfaction value they will give will be relatively lower (Jala & Nandagiri, 2015). Thus, compared to individuals visiting the Umbul Sidomukti tourist attraction for the first time, they tend to give relatively higher service ratings.

Table 6. Summary of Multiple Regression Outputs

ANOVA	
R Square	0,1432
Adj. R Square	0,109
F value	4,179
p-value	0,003591*
Std. Error of Estimate	0,6408

*Significant at 0.05 (5%) degree of confidence

Table 6. Summary of Multiple Regression Outputs

Variabel	β	Std. Error	t-value	Sig.
(Constant)	1,3001	0,63399	2,0507	0.0429
Travcost (Rp)	-0.0000016094	0,00000061	-2.642	0.0100*
Service (Likert)	-0.11948	0,15250	-0,7835	0.4351
Income (Rp)	0.00000008066	0,00000004	1.7735	0.0791
Distance (km)	-0,0044833	0,001308	-3,4262	0,0008*

Note: * Significant at 0.05 (5%) degree of confidence

Estimated Consumer Surplus and Economic Valuation

The economic value of a tourist attraction can be measured by first calculating the Consumer Surplus or abbreviated CS received by consumers. According to Sohngen et al. (1999), CS represents the tourism use value attached to the tourist object. CS also refers to the added value outside of travel costs that individuals obtain when visiting a tourist attraction.

The CS estimate in this study was obtained at IDR 268,725 per individual per visit during 2022. The CS value indicates individual satisfaction in visiting the Umbul Sidomukti tourist attraction and can be calculated further to obtain the economic value of the Umbul Sidomukti tourist attraction. If CS is an estimate for one individual, then the economic value is the entire area within the tourist attraction, represented by the sum of all visitors. Thus, the economic value of the Umbul Sidomukti tourist attraction for 2022 can be calculated by following the formula below:

AAT= CS per person per trip x sum of visitors

Based on data from the BPS Kota Semarang (2019), the number of visitors to the Umbul Sidomukti tourist attraction was 104,727 visits. The number of visits is the number of visits during 2018. The data on the number of visits for 2018 was chosen because it was close to conditions in 2022. Meanwhile, the data for the number of visits for 2017, 2019, 2020, and 2021 were not selected because there are still effects of the COVID-19 pandemic. Thus, the total economic valuation of the Umbul Sidomukti tourist attraction is estimated at Rp. 28,142,763,075 in 2022.

The CS estimation results in this study are the same as previous studies, and this is because previous studies (Egan et al., 2022; Knoche & Ritchie, 2022) included accommodation costs in calculating travel costs. These results can also explain the difference between what one is willing to pay for a good/service and what is paid for it. Summing up these estimates and explaining the overall CS allows estimation of the net benefits received from the tourism sites studied (Egan et al., 2022). So, in this study, it can be explained that consumers still get remuneration (profits) from visits made to the Umbul Sidomukti Tourism Object.

Conclusion

The variables of travel costs (travcost) and distance (distance) were found to be significant to the number of Umbul Sidomukti tourist visits from the four variables that have been tested. On the other hand, income and service variables did not affect the number of visits. Furthermore, it was found that a consumer surplus value of IDR 268,725 per individual in each visit was found, where this value was more significant than the price of travel expenses, namely IDR 99,805.04. These results indicate that Umbul Sidomukti tourism provides more significant benefits than the costs incurred.

In connection with the total economic valuation of Umbul Sidomukti tourism, IDR

28,142,763,075 in 2022, Umbul Sidomukti has high economic value. Reflecting on this, the use of natural resources for tourism at Umbul Sidomukti should be developed. Investing in Umbul Sidomukti tourism needs to be done correctly to avoid increasing the price of visits, which will cause a decrease in the number of tourists if the investment is too large.

References

Acharya, S., Mekker, M., & De Vos, J. (2023). Linking travel behavior and tourism literature: Investigating the impacts of travel satisfaction on destination satisfaction and revisit intention. *Transportation Research Interdisciplinary Perspectives*, *17*(December 2022), 100745. https://doi.org/10.1016/j.trip.2022.100745

Aryanto, R., & Mardjuka, M. Y. (2005). Valuasi Ekonomi dengan Travel Cost Method pada Objek Ekowisata Pesisir. *Jurnal Ilmiah Pariwisata*, *10*(1), 58–76.

Berhanu, K., & Raj, S. (2020). The trustworthiness of travel and tourism information sources of social media: perspectives of international tourists visiting Ethiopia. *Heliyon*, *6*(3), e03439. https://doi.org/10.1016/j.heliyon.2020.e03439

BPS Kota Semarang. (2019). *No Title*. 2019. https://semarangkab.bps.go.id/

De Siano, R., & Canale, R. R. (2022). Controversial effects of tourism on economic growth: A spatial analysis on Italian provincial data. *Land Use Policy*, *117*(February), 106081. https://doi.org/10.1016/j.landusepol.2022.106081

Egan, A. L., Rolfe, J., Cassells, S., & Chilvers, B. L. (2022). Potential changes in the recreational use value for Coastal Bay of Plenty, New Zealand due to oil spills: A combined approach of the travel cost and contingent behaviour methods. *Ocean and Coastal Management*, *228*(July), 106306. https://doi.org/10.1016/j.ocecoaman.2022.106306

Etikan, I. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1. https://doi.org/10.11648/j.ajtas.20160501.11

Eugenio-Martin, J. L., & Inchausti-Sintes, F. (2016). Low-cost travel and tourism expenditures. *Annals of Tourism Research*, *57*, 140–159. https://doi.org/10.1016/j.annals.2015.11.019

Fahmi, T. (2021). Dampak Aktivitas Objek Wisata Umbul Sidomukti terhadap Pendapatan Masyarakat Desa Sidomukti. *Indonesian Journal of Development Economics*, *4*(1), 1128–1141. https://doi.org/https://doi.org/10.15294/efficient.v4i1.43735

Jala, & Nandagiri, L. (2015). Evaluation of Economic Value of Pilikula Lake Using Travel Cost and Contingent Valuation Methods. *Aquatic Procedia*, *4*(Icwrcoe), 1315–1321. https://doi.org/10.1016/j.aqpro.2015.02.171

Kemenparekraf. (2022). *Berkenalan dengan 5 Destinasi Super Prioritas Indonesia*. 2022. https://info5dsp.kemenparekraf.go.id/

Knoche, S., & Ritchie, K. (2022). A travel cost recreation demand model examining the economic benefits of acid mine drainage remediation to trout anglers. *Journal of Environmental Management*, *319*(April), 115485. https://doi.org/10.1016/j.jenvman.2022.115485

Lee, W., Park, S., & Jeong, C. (2022). Repositioning risk perception as a necessary condition of travel decision: The case of North Korea tourism. *Journal of Hospitality and Tourism Management*, *52*(December 2021), 252–263. https://doi.org/10.1016/j.jhtm.2022.07.001

Leh, F. C., Mokhtar, F. Z., Rameli, N., & Ismail, K. (2018). Measuring recreational value using travel cost method (TCM): a number of issues and limitations. *International Journal of Academic Research in Business and Social Sciences*, *8*(10), 1381–1396.

Loomis, J., & McTernan, J. (2014). Economic Value of Instream Flow for Non-Commercial Whitewater Boating Using Recreation Demand and Contingent Valuation Methods. *Environmental Management*, *53*(3), 510–519. https://doi.org/10.1007/s00267-014-0232-z

Mahakena, M. A., Siahainenia, S. M., & Sahetapy, D. (2021). Valuasi Ekonomi Ekosistem Terumbu Karang Pulau Warbal di Kawasan Konservasi Kei Kecil Kabupaten Maluku Tenggara. *Triton: Jurnal Manajemen Sumberdaya Perairan*, *17*(2), 104–116. https://doi.org/10.30598/TRITONvol17issue2page104-116

Matthew, N., Shuib, A., Ramachandran, S., & Mohammad-Afandi, S. (2019). Economic Valuation Using Travel Cost Method (TCM) in Kilim Karst Geoforest Park, Langkawi, Malaysia. *Journal of Tropical Forest Science*, *31*(1), 78–89. https://doi.org/10.26525/jtfs2019.31.1.078089

Matthew, O. A., Ede, C., Osabohien, R., Ejemeyovwi, J., Ayanda, T., & Okunbor, J. (2021). Interaction effect of tourism and foreign exchange earnings on economic growth in Nigeria. *Global Business Review*, *22*(1), 7–22.

Mohamed, Z., Afand, S. H. M., Shuib, A., Ramachandran, S., & Adam, S. M. (2021). a Travel Cost Analysis of the Value of Adventure Tourism of Kampar, Malaysia. *Journal of Sustainability Science and Management*, *16*(8), 118–133. https://doi.org/10.46754/jssm.2021.12.009

Ngoc, N. M., Tien, N. H., Hieu, V. M., & Trang, T. T. T. (2023). Sustainable Integration in Vietnam's Tourism Industry. *World Review of Entrepreneurship Management and Sustainable Development*.

Pulido-Fernández, J. I., Cárdenas-García, P. J., & Espinosa-Pulido, J. A. (2019). Does environmental sustainability contribute to tourism growth? An analysis at the country level. *Journal of Cleaner Production*, *213*, 309–319.

Ratnasari, R. T., Gunawan, S., Mawardi, I., & Kirana, K. C. (2021). Emotional experience on behavioral intention for halal tourism. *Journal of Islamic Marketing*, *12*(4), 864–881. https://doi.org/10.1108/JIMA-12-2019-0256

Salma, I. A., & Susilowati, I. (2004). Analisis Permintaan Objek Wisata Alam Curug Sewu, Kabupaten Kendal dengan Pendekatan Travel Cost. *Dinamika Pembangunan*, *1*(2), 153–165.

Singgalen, Y. A., Sasongko, G., & Wiloso, P. G. (2019). Ritual capital for rural livelihood and sustainable tourism development in Indonesia. *Jurnal Manajemen Hutan Tropika*, *25*(2), 115.

Sohngen, B., Lichtkoppler, F., & Bielen, M. (1999). *The Value of Day Trips to Lake Erie Beaches*.

Solikin, A., Rahman, R. A., Saefrudin, E., Suboh, N., Zahari, N. H., & Wahyudi, E. (2019). Forest valuation using travel cost method (TCM): Cases of Pahang National Park and Srengseng Jakarta urban forest. *Planning Malaysia*, *17*.

Vergori, A. S., & Arima, S. (2022). Low-cost carriers and tourism in the Italian regions: A segmented regression model. *Annals of Tourism Research*, *97*, 103474. https://doi.org/10.1016/j.annals.2022.103474

Widiastuti, I. A. M. S., Astawa, I. N. D., Mantra, I. B. N., & Susanti, P. H. (2021). The Roles of English in the Development of Tourism and Economy in Indonesia. *SOSHUM: Jurnal Sosial Dan Humaniora*, *11*(3), 305–313.

Winarngsih, T. (2021). Valuasi Ekonomi Wisata Pulau Rupat Kabupaten Bengkalis, Provinsi Riau Dengan Metode Travel Cost Method. *JFMR-Journal of Fisheries and Marine Research*, *5*(3), 508–513. https://doi.org/10.21776/ub.jfmr.2021.005.03.2

Yhee, Y., Shin, S., Lee, E., & Kim, J. (2023). Examining the importance of spatial aspects of travel routes : A multi-method approach. *Information Processing and Management*, *60*(3), 103281. https://doi.org/10.1016/j.ipm.2023.103281

Yousaf, I., Abrar, A., & Goodell, J. W. (2023). Connectedness between travel & tourism tokens, tourism equity, and other assets. *Finance Research Letters*, *December*, 103595. https://doi.org/10.1016/j.frl.2022.103595

Zulvianti, N., Aimon, H., & Abror, A. (2022). The Influence of Environmental and Non-Environmental Factors on Tourist Satisfaction in Halal Tourism Destinations in West Sumatra, Indonesia. In *Sustainability* (Vol. 14, Issue 15). https://doi.org/10.3390/su14159185