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ECONOMIC VALUATION OF GRONJONG WARITI ECOTOURISM AREA IN KEDIRI REGENCY

Valuasi Ekonomi Kawasan Ekowisata Gronjong Wariti Kabupaten Kediri

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ABSTRACT

Ecotourism development in Indonesia requires optimal management of available resource potential. Gronjong Wariti Ecotourism, located in Mejono Village, Plemahan District, Kediri Regency, is a community-based tourism destination that optimizes the balance between terrestrial ecosystems and river aquatic environments into fishery ecotourism. This tourism site adopts an educational tourism concept with facilities including tilapia, catfish, and comet fish ponds for live feeding activities, as well as fish therapy using *Garra rufa*. This research aims to analyze visitor assessments and calculate the economic value of Gronjong Wariti Ecotourism area using the Travel Cost Method approach. The study employs a descriptive method with quantitative and qualitative approaches through data collection techniques including observation, interviews, questionnaires, and documentation. The research sample of 30 respondents was determined using the linear time function formula. Research variables include independent variables namely travel costs, distance, income, education, age, gender, and transportation, as well as the dependent variable of visit demand quantity. The Travel Cost Method is used to calculate the economic value of resources with a regression model to determine the influence of each factor and calculate consumer surplus through Willingness to Pay analysis. The research results are expected to provide recommendations for managers regarding ecotourism area development and contribute academic information about economic valuation of fishery tourism areas.

Keywords: Economic Value, Ecotourism, Fishery Tourism, Travel Cost Method

ABSTRAK

Pengembangan ekowisata di Indonesia memerlukan pengelolaan yang optimal terhadap potensi sumber daya yang tersedia. Ekowisata Gronjong Wariti yang berlokasi di Desa Mejono, Kecamatan Plemahan, Kabupaten Kediri merupakan destinasi wisata berbasis masyarakat yang mengoptimalkan keseimbangan antara ekosistem darat dan perairan sungai menjadi ekowisata perikanan. Wisata ini mengusung konsep eduwisata dengan fasilitas kolam ikan nila (*Oreochromis niloticus*) ikan patin (*Pangasius* sp.) ikan komet (*Carassius auratus*), untuk kegiatan *live feeding*, serta terapi ikan menggunakan *Garra rufa*. Penelitian ini bertujuan untuk

menganalisis penilaian pengunjung dan menghitung besaran nilai ekonomi kawasan Ekowisata Gronjong Wariti menggunakan pendekatan *Travel Cost Method*. Penelitian menggunakan metode deskriptif dengan pendekatan kuantitatif dan kualitatif melalui teknik pengumpulan data berupa observasi, wawancara, kuesioner, dan dokumentasi. Sampel penelitian sebanyak 30 responden ditentukan dengan rumus *linear time function*. Variabel penelitian meliputi variabel independen yaitu biaya perjalanan, jarak, pendapatan, pendidikan, umur, jenis kelamin, dan transportasi, serta variabel dependen berupa jumlah permintaan kunjungan. Metode *Travel Cost Method* digunakan untuk menghitung nilai ekonomi sumberdaya dengan model regresi untuk mengetahui pengaruh setiap faktor dan menghitung surplus konsumen melalui analisis *Willingness to Pay*. Hasil penelitian diharapkan dapat memberikan rekomendasi bagi pengelola untuk pengembangan kawasan ekowisata dan menambah informasi akademis tentang valuasi ekonomi kawasan wisata perikanan.

Kata Kunci: Ekowisata, Nilai Ekonomi, *Travel Cost Method*, Wisata Perikanan

INTRODUCTION

Ecotourism gained widespread recognition after being published by The International Ecotourism Society (TIES) in 1990 as a form of responsible nature tourism, aimed at preserving the environment while improving the well-being of local communities (Syah & Said, 2020). Etymologically, the word "ecotourism" comes from the Greek "oikos," meaning home, and "tourism," meaning journey. Therefore, ecotourism can be defined as travel based on environmental sustainability as a shared "home" (Noho et al., 2020). The basic principles of ecotourism continue to develop rapidly, prioritizing a sustainable development approach that encompasses environmental education, nature conservation, and improving the well-being of communities surrounding tourist areas.

Community-Based Tourism (CBT) is a relevant approach to community-based ecotourism development in Indonesia, where local communities play an active role in managing tourism assets, directly benefiting local residents (Suganda, 2018), while simultaneously maintaining the balance of the region's ecosystem.

One of the growing community-based ecotourism destinations in East Java is the Gronjong Wariti Ecotourism, located in Mejono Village, Plemahan District, Kediri Regency. This area utilizes the potential of river flows and aquatic ecosystems as the basis for managing fisheries tourism and has received an award for the best tourism management in Kediri Regency (Satya Arianto, 2021). Gronjong Wariti promotes an educational tourism concept, providing ponds for tilapia (*Oreochromis niloticus*), catfish (*Pangasius* sp.), and goldfish (*Carassius auratus*) for live feeding, as well as fish therapy using *Garra rufa*. This tourism concept offers dual benefits: recreational and educational value for visitors.

To date, there is no measurable data available on the economic value of Gronjong Wariti Ecotourism, although such information is crucial for its management and sustainable development. The Travel Cost Method (TCM) is a commonly used approach to measure the economic value of a tourist area by calculating visit costs as a proxy for benefit value, while also estimating consumer surplus through Willingness to Pay (Lalenoh et al., 2021). This method can also be used to analyze the number of visit requests and estimate consumer surplus through the Willingness to Pay approach (Arie et al., 2024).

This study aims to: (1) analyze the socioeconomic characteristics of visitors; (2) estimate the economic value of the area using the TCM; (3) identify factors influencing visitation levels; and (4) provide recommendations for sustainable management strategies. Travel costs and income are suspected to be the dominant factors in visitation, and the area's economic value has not been optimally utilized.

RESEARCH METHODS

Research Type and Location

This study used a descriptive method with quantitative and qualitative approaches to obtain an overview of the economic value of Gronjong Wariti Ecotourism. The qualitative approach was used to describe the conditions of the research object (Wiwin, 2018), while the quantitative approach was used to statistically process questionnaire data (Muchson & MM, 2017). The research was conducted in Mejono Village, Plemahan District, Kediri Regency through an on-site survey.

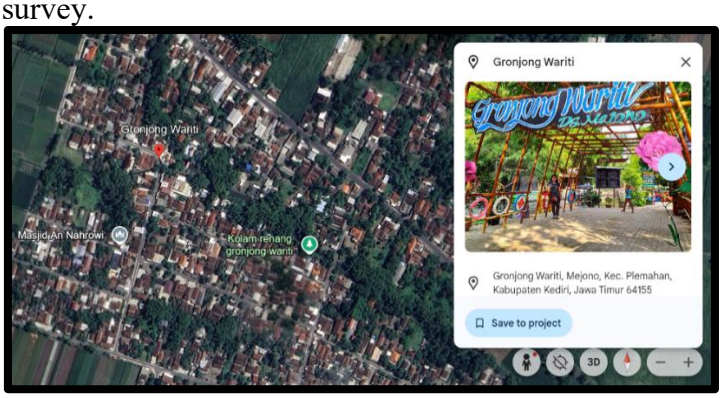

Figure 1. Research Location Map

Data Type and Sources

This study used two types of data sources: primary and secondary data.

Primary Data

Primary data was obtained through observation, structured interviews, and questionnaires with visitors (Pratama Atmajaya, 2021). The primary data were also collected through interviews with managers to obtain information on the number of MSMEs, vendor turnover, and pricing policies. The questionnaire included data on visitor characteristics, including age, occupation, education, travel distance, income, mode of transportation, and suggestions for area development.

Secondary Data

Secondary data was obtained from indirect sources (Jabnabillah et al., 2023), including Travel Cost Method literature, general site conditions, and location maps sourced from libraries and previous research reports.

Population and Sample

The study population was all tourists visiting the Gronjong Wariti Ecotourism Site (Candra Susanto et al., 2024). Because the exact population size is unknown, the sample was determined using the linear time function formula (Ramadhan & Bukhari, 2020), with a purposive sampling technique based on adult visitor criteria (Maharani & Bernard, 2018). The linear time function formula is as follows:

$$T = t_0 + t_1 n$$

$$n = \frac{(T - to)}{t_1}$$

Where:

T = 2-day research period (600 minutes)
t_0 = 5-hour daily period (300 minutes)
t_1 = questionnaire completion time per respondent (10 minutes)

n = number of respondents

$$n = \frac{(600 \text{ minutes} - 300 \text{ minutes})}{10}$$

$$n = 30 \text{ respondents}$$

Based on these calculations, the required sample size for this study was 30 respondents, selected over two days of data collection.

Data Collection Techniques

Data collection was conducted using four methods: (1) questionnaires for visitors to obtain data on characteristics and visiting behavior (Omry, 2024). (2) direct observation of the condition of facilities and activities in the area (Wani et al., 2024). (3) structured interviews with visitors and managers using an audio recorder and camera (Rusdian et al., 2023), and (4) documentation in the form of photographs, management documents, and previous research reports.

Research Variables

A research variable is an attribute or characteristic of an object or activity that has certain variations and has been determined by the researcher to be studied and conclusions drawn (Hikmah, 2020).

Independent Variables

The independent variables used in this study consist of eight variables. First, the number of visit requests, measured per visit. Second, travel costs, including transportation, meals, rides, parking, and other costs, expressed in rupiah per visit (IDR/visit). Third, distance traveled, measured in kilometers (km). Fourth, respondent income, measured in rupiah per month (IDR/month) (Hikmah, 2020). Next, education was measured based on the number of years of schooling, starting from elementary school (6 years), junior high school (9 years), high school (12 years), diploma (1) (13 years), diploma (2) (14 years), diploma (3) (15 years), bachelor's (16 years), master's (19 years), and doctoral (20 years). Age was measured in years. Gender was coded as a dummy variable, with male coded 0 and female coded 1. Finally, transportation was coded based on vehicle type: motorcycle coded 0, car coded 1, motorcycle rental coded 2, and car rental coded 3.

Dependent Variable

The dependent variable or dependent variable is the variable that is influenced or results from the presence of the independent variable (Hikmah, 2020). The dependent variable in this study is the number of visit requests, namely the frequency of visits made by visitors to the Gronjong Wariti Ecotourism area, which is expressed in units of visits per individual.

Data Analysis Using the Travel Cost Method

The economic value of the Gronjong Wariti Ecotourism area was calculated using the Individual Travel Cost Method (TCM) approach (Muhammad Ammar Abdurrahman, 2021). The analysis is carried out through several stages as follows:

Visit Demand Function

The first step is to form a visit demand function using the following regression model:

$$V = a_0 + a_1 c$$

Where:

V = number of visits

a_0 = constant

a_1 = regression coefficient
C = travel cost per individual

Consumer Surplus and Willingness to Pay (WTP)

Once the demand function is known, consumer surplus, which is the essence of Willingness to Pay (WTP), is calculated using the formula:

$$\text{WTP} = \text{CS} = \frac{\text{N}^2}{2a1}$$

Where:
CS = consumer surplus per individual per visit
N = number of visits made by an individual
a_1 = regression coefficient of travel cost

Regional Economic Value

The total economic value of a region is obtained by multiplying the value of consumer surplus per individual by the total number of visits during one year:

Economic Value of Resources = CS x ∑ Visits per year

Actual Income

Actual income is calculated based on the actual number of visits that occur during one year multiplied by the average price Attractions as a proxy for access prices:

Actual Revenue Value = ∑ Visits during 1 Year x Average Price of Rides

Potential Income

Potential income is calculated based on the assumption of daily visits multiplied by the number of operating days in a year and the average attraction price:

Potential Income Value = Potential Visits in a day X number of days in 1 year x Average Price of Rides

Because Gronjong Wariti Ecotourism does not charge an entrance fee, the average attraction price is used as a proxy for the area's access price. The average attraction price is calculated from the 40 available attractions, amounting to IDR 9,500 per attraction, with the following breakdown:

Table 1. Average Attraction Prices

Price	Number of Rides	Total
IDR 5,000	11 rides	IDR 55,000
IDR 10,000	27 rides	IDR 270,000
IDR 20,000	1 ride	IDR 20,000
IDR 35,000	1 ride	IDR 35,000
Total	**40 rides**	**IDR 380,000**

P ¯avenues = 40 IDR 380,000 = IDR 9,500

Using the average attraction price proxy in TCM is a common approach, where travel costs and on-site expenditure components can be used as proxies for recreation prices (DJKN, 2021). Attractions are also a major component of tourism area revenue, as academically recognized (Adibrata & Fatimah, 2023).

RESULT

Overview of the Research Site

Gronjong Wariti Ecotourism is a community-based tourism (CBT) destination located in Mejono Village, Plemahan District, Kediri Regency, East Java. This area utilizes the river as

its main attraction, complemented by fisheries educational tourism concept through live feeding and *Garra rufa* fish therapy activities. Developed since 2017 through active community participation in river revitalization, the area now features a swimming pool, play area, MSME culinary center, and other public facilities, while providing a tangible economic impact for the surrounding community.

Visitor Characteristics

Visitor Gender

Table 2. Visitor Gender

No	Gender	Number (People)	Percentage (%)
1	Male	14	46.67%
2	Female	16	53.33%
Total		**30**	**100%**

Data Source: Processed Primary Data

According to Table 2, visitors to Gronjong Wariti Ecotourism are predominantly female (16 respondents (53.33%), while 14 respondents (46.67%) are male. These results indicate that this tourist attraction is quite popular with both female and male visitors.

Visitor Age Type

Table 3. Visitor Age Type

No	Age Type	Number (People)	Percentage (%)
1	20-40	11	37.93%
2	41-70	18	62.07%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 3, the majority of visitors are in the productive age group. The largest age group is between 41 and 70 years old. This indicates that Gronjong Wariti Ecotourism is mostly visited by productive-age tourists.

Visitor Education Level

Table 4. Visitor Education Level

No	Type of Education	Number (People)	Percentage (%)
1	Elementary School	3	10.00%
2	Middle School	6	20.00%
3	High School	10	33.33%
4	Diploma 3	2	6.67%
5	Bachelor's Degree	6	20.00%
6	Master's Degree	3	10.00%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 4, the majority of visitors have a high school or college education. This level of education indicates that visitors have a relatively good educational background.

Visitor Occupation Type

Table 5. Visitor Occupation

No	Type of Work	Number (People)	Percentage (%)
1	Private	4	13.33%
2	Entrepreneur	8	26.67%
3	Police	1	3.33%
4	Teacher	5	16.67%
5	Housewife	5	16.67%
6	Farmer	1	3.33%
7	Lab Analysis	1	3.33%
8	Freelance	1	3.33%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 5, visitors to Gronjong Wariti Ecotourism are predominantly entrepreneurs, teachers, and housewives. This indicates that the tourist area is quite popular among the productive age group.

Visitor Origin

Table 6. Visitor Origin

No	City of Origin	Number (People)	Percentage (%)
1	Kediri	18	60.00%
2	Jombang	4	13.33%
3	Bandung	1	3.33%
4	Tanggerang	1	3.33%
5	Gresik	1	3.33%
6	Nganjuk	4	13.33%
7	Trenggalek	1	3.33%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 6, most visitors come from Kediri Regency and the surrounding areas. However, there are also visitors from outside the region, such as Bandung and Tangerang.

Visitor Income

Table 7. Visitor Income

No	Total Revenue	Number (People)	Percentage (%)
1	< 500,000	5	16.67%
2	1,000,000-2,000,000	11	36.67%
3	2,000,000-3,000,000	4	13.33%
4	> 2,000,000	10	33.33%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 7, most visitors have a middle-income level. Visitor incomes vary from less than IDR 1,000,000 to more than IDR 2,000,000 per month.

Visitor Travel Costs

Table 8. Visitor Travel Costs

No	Travel Expense	Number (People)	Percentage (%)
1	35,000-120,000	14	47%
2	130,000-210,000	9	30%
3	220,000-300,000	2	7%
4	310,000-400,000	2	7%
5	410,000-500,000	3	10%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 8, the average visitor travel cost varies depending on the distance traveled and the type of transportation used. The largest cost components come from transportation and meals during the visit.

Visitor Distance

Table 9. Visitor Travel Distance

No	Visitor Travel Distance (km)	Number (People)	Percentage (%)
1	1.5 km – 19 km	19	63%
2	20 km – 36 km	1	3%
3	37 km – 53 km	6	20%
4	54 km – 70 km	2	7%
5	71 km – 87 km	1	3%
6	88 km – 104 km	1	3%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 9, most visitors come from areas less than 50 km from the tourist site. This indicates that this tourist site is mostly visited by local and regional tourists.

Visitor Transportation

Table 10. Visitor Transportation

No	Visitor Transportation	Number (People)	Percentage (%)
1	Motorcycles	16	53%
2	Cars	12	40%
3	Motorcycle Rentals	2	7%
Total		**30**	**100%**

Data Source: Processed Primary Data

Based on Table 10, most visitors use motorcycles as a means of transportation to the tourist site. The use of private vehicles is more dominant than rental transportation.

Economic Value of the Gronjong Wariti Ecotourism Area

Results of Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted to determine the effect of independent variables on the number of visits (Y). The independent variables used include: travel cost (X_1), total income (X_2), education level (X_3), travel distance (X_4), and travel time (X_5). The regression equation model used is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

The results of the regression calculations using Microsoft Excel software produce the

following statistical output.

Table 11. Regression Statistics

Regression Statistics	
Multiple R	0.494913479
R Square	0.244939352
Adjusted R Square	0.08763505
Standard Error	6.012887884
Observations	30

Data Source: Processed Primary Data

Table 12. ANOVA Results

ANOVA					
	df	SS	MS	F	Significance F
Regression	5	281.484303	56.2968606	1.557105235	0.210084439
Residual	24	867.715697	36.15482071		
Total	29	1149.2			

Data Source: Processed Primary Data

Table 13. Regression Coefficients

	Coefficients	Standard Error	t Stat	P-value
Intercept	12.29393183	4.192732679	2.932200255	0.007286252
Travel Expense (X_1)	-1.77426E-05	1.30779E-05	-1.356690449	0.187504766
Total Revenue (X_2)	-9.92198E-07	1.56734E-06	-0.633044838	0.532690604
Education Level (X_3)	-0.254376798	0.391718144	-0.649387327	0.522254974
Travel Distance (X_4)	-0.038705254	0.103469516	-0.374073982	0.711633821
Traveling Time (X_5)	1.948067507	2.671046359	0.729327479	0.472859675

Source: Processed Primary Data (*Significant at $\alpha = 0.05$)

Consumer Surplus

Consumer surplus was calculated using a simple regression between travel costs (X_1) and the number of visits (Y). The total consumer surplus value from all 30 respondents was IDR 50,274,434, with an average consumer surplus per individual per visit (CS Ind/KJG) of IDR 129,631.39. The economic value of the Gronjong Wariti Ecotourism area based on the consumer surplus approach was IDR 18,666,919,748.12.

Actual Revenue from Gronjong Wariti Ecotourism

The actual revenue of Gronjong Wariti Ecotourism is calculated based on the actual number of visitors during one year, multiplied by the average attraction price of IDR 9,500. The actual revenue calculation data is presented in Tables 14–16.

Table 14. Calculation of Actual Revenue per Day

Day	Visitors × Average Rides	Daily Income
Monday – Friday	100 × IDR 9,500	IDR 950,000
Saturday – Sunday	1,000 × IDR 9,500	IDR 9,500,000

Source: Processed Primary Data

Table 15. Calculation of Actual Revenue per Month

Per Month	Calculation	Monthly Income
Monday – Friday	IDR 950,000 × 20 days	IDR 19,000,000

Per Month	Calculation	Monthly Income
Saturday – Sunday	IDR 9,500,000 × 10 days	IDR 95,000,000

Source: Processed Primary Data

Table 16. Actual Revenue for Gronjong Wariti per Year

Components	Income	Information
Effective Days	IDR 19,000,000	+
Saturday – Sunday	IDR 95,000,000	
Monthly Total	IDR 114,000,000 × 12 Months	
Actual Income	IDR 1,368,000,000	per year

Source: Processed Primary Data

Potential Revenue from Gronjong Wariti Ecotourism

Potential revenue is calculated by assuming optimal visitor numbers, namely 150 visitors on weekdays and 1,500 visitors on holidays, multiplied by the average attraction price of IDR 9,500. The data is presented in Tables 17-19.

Table 17. Calculation of Potential Income per Day

Day	Visitors × Average Rides	Daily Income
Monday – Friday	150 × IDR 9,500	IDR 1,425,000
Saturday – Sunday	1,500 × IDR 9,500	IDR 14,250,000

Data Source: Processed Primary Data

Table 18. Calculation of Potential Income per Month

Per Month	Calculation	Monthly Income
Monday – Friday	IDR 1,425,000 × 20 days	IDR 28,500,000
Saturday – Sunday	IDR 14,250,000 × 10 days	IDR 142,500,000

Data Source: Processed Primary Data

Table 19. Potential Income of Gronjong Wariti per Year

Components	Income	Information
Effective Days	IDR 28,500,000	+
Saturday – Sunday	IDR 142,500,000	
Monthly Total	IDR 171,000,000 × 12 Months	
Potential Income	IDR 2,052,000,000	per year

Data Source: Processed Primary Data

Economic Impact of Gronjong Wariti Ecotourism on Local MSMEs
Estimated MSME Income

Based on interviews with area managers, there are 78 MSMEs actively selling in the Gronjong Wariti Ecotourism area. Assumptions for calculating MSME revenue are presented in Tables 20-21.

Table 20. Assumed Days for MSME Revenue

Components	Value
Effective (quiet) days per month	20 days
Saturdays & Sundays (busy) days per month	10 days
Total days per month	30 days
Total effective days per year	240 days (20×12)
Total peak days per year	120 days (10×12)

Data Source: Primary Data

Table 21. Estimated MSME Revenue Calculation per Year

Calculation	Total
Off-peak days: IDR 300,000 × 78 merchants × 240 days	IDR 5,616,000,000
Busy days: IDR 1,000,000 × 78 merchants × 120 days	IDR 9,360,000,000
Total estimated MSME revenue per year	IDR 14,976,000,000

Data Source: Processed Primary Data

Income Distribution Proportion

An analysis of income distribution proportions is conducted to determine the extent of economic benefits received by each party. Distributions based on actual and potential income are presented in Tables 22 and 23.

Table 22. Actual Income Distribution Proportion

Recipients	Annual Income	Percentage (%)
MSME Traders	IDR 14,976,000,000	91.6%
Tourism Managers	IDR 1,368,000,000	8.4%
Total	IDR 16,344,000,000	100%

Data Source: Processed Primary Data

Table 23. Potential Income Distribution Proportion

Recipients	Annual Income	Percentage (%)
MSME Traders	IDR 14,976,000,000	87.9%
Tourism Managers	IDR 2,052,000,000	12.1%
Total	IDR 17,028,000,000	100%

Data Source: Processed Primary Data

DISCUSSION

Socio-Economic Characteristics of Visitors to Gronjong Wariti Ecotourism

Visitors to Gronjong Wariti Ecotourism are predominantly female (53.33%), aged 41–70 years (62.07%), with the highest educational level being high school (33.33%). This composition demonstrates the area's inclusive appeal, consistent with findings Noho et al. (2020) that women tend to be more active in education-based family tourism. The productive age group has a more stable economic capacity and more flexible leisure time, thus positively correlating with Willingness to Pay, as stated Setyawan et al. (2020), which states that age is positively correlated with Willingness to Pay because the productive adult age group has a more stable accumulated income.

Visitor education levels show a diverse distribution, with the largest proportion at the high school level (33.33%), followed by undergraduate and junior high school degrees, each at 20.00%. This relatively good educational background has implications for visitors' understanding of the fisheries educational tourism concept offered by Gronjong Wariti. According to Sadikin et al. (2017), the higher a tourist's education level, the greater their willingness to pay for quality tourism services, as they are better able to appreciate the ecological and educational value of an area.

As many as 60% of visitors come from Kediri Regency, with travel distances predominantly 1.5–19 km, confirming the local demand concept in TCM, which states that geographic proximity drives visitation intensity (Zurba & Cahyani, 2022). The presence of visitors from Bandung and Tangerang indicates that the area's appeal is beginning to transcend local boundaries, driven by its proximity to the English Village of Pare. The majority of visitors

earn between IDR 1,000,000 and IDR 2,000,000 per month, with travel costs ranging from IDR 35,000 to IDR 120,000 (47%), indicating that this tourism is affordable for the middle class, reinforced by the predominance of motorcycle transportation (53%).

Factors Influencing Tourist Visit Levels

Multiple linear regression analysis yielded an R^2 value of 0.2449, meaning the five independent variables (travel costs, income, education level, distance, and travel time) explained 24.49% of the variation in the number of visits. This moderate R^2 value is common in nature tourism valuation research, considering that travel decisions are also influenced by qualitative factors such as recreational motivation, cultural values, and seasonal conditions that are difficult to quantify. Simultaneously, the five variables did not have a significant effect (F sig. = 0.210), possibly due to the limited sample size (n = 30), the homogeneity of respondents due to purposive sampling, and the motivation for visits being more socio-recreational than economic.

Partially, travel costs (X_1) showed a negative coefficient (-0.0000177, p = 0.188), consistent with the law of demand and hypothesis H1 (Febianti, 2016). This finding aligns with Susilowati (2019), who also found a negative coefficient for travel costs in her TCM model. Although not statistically significant, this negative relationship still supports the validity of the TCM approach.

The income variable (X_2) actually has a negative coefficient (p = 0.533), contradicting H2, as low travel costs make income a less significant constraint on the decision to visit—a similar pattern was found (Noho et al., 2020). The distance variable (X_4) was also insignificant (p = 0.712) due to minimal variation in distance between respondents. Overall, these results indicate that visits to Gronjong Wariti are primarily driven by the appeal of fisheries educational tourism and the quality of facilities (Minister of Home Affairs Regulation No. 33 of 2009 in Supriadi & Malang, 2017).

Economic Value of the Gronjong Wariti Ecotourism Area

The Individual Travel Cost Method (TCM) approach yielded an average consumer surplus of IDR 129,631.39 per individual per visit, with a total area economic value of IDR 18,666,919,748.12 per year. This value far exceeds the findings Susilowati (2009) for the Ir. H. Djuanda Natural Park (IDR 24,926/visit; total IDR 3.19 billion), indicating that Gronjong Wariti offers greater benefits even without an entrance fee. The high consumer surplus reflects visitors' willingness to pay significantly more than their actual expenditure, which is the core concept of Willingness to Pay in natural resource valuation (Rangkuti et al., 2023). Compared to the Limboto Lake Ecotourism (Noho et al., 2020), which valued Gronjong Wariti at IDR 43.69 billion (approximately USD 1,000,000) based on the provincial population, the value of Gronjong Wariti remains scientifically significant as a community-based ecotourism project at the district level, supporting the acceptance of hypothesis H4.

The IDR 18.67 billion value represents visitor use value, not direct management income. The gap between the total economic value and actual management income (IDR 1.37 billion/year) reflects underpricing, indicating that the area's potential has not been optimally utilized. This situation underpins the recommendation to implement a proportional fee or entrance fee scheme to support sustainable management.

Economic Impact on MSMEs and Distribution of Benefits

Gronjong Wariti Ecotourism has a tangible economic impact on the local community through 78 active MSMEs, with an estimated annual income of IDR 14.97 billion. The actual revenue distribution (IDR 16.34 billion) shows that 91.6% went to MSMEs and 8.4% to managers, demonstrating the success of the Community-Based Tourism (CBT) model, in

accordance with the principles of Minister of Home Affairs Regulation No. 33 of 2009, which stipulates that ecotourism must provide tangible economic benefits to local communities (Hanum, Fauziah, Reiza D. Dienaputra, Dadang Suganda, 2021). This finding also aligns with the principle of ecotourism economic participation in Minister of Home Affairs Regulation No. 33 of 2009, which mandates that ecotourism development must provide tangible economic benefits to surrounding communities (Supriadi & Malang, 2017).

The potential regional revenue of IDR 2.05 billion/year can be increased by IDR 684 million through digital promotion and proximity to Kampung Inggris Pare. This research proves that TCM, using the average price of rides as a proxy for access prices, is a valid methodological adaptation. The economic value of IDR 18.67 billion and benefits for 78 local MSMEs demonstrate that the Gronjong Wariti CBT model successfully balances economic interests and natural resource sustainability.

CONCLUSION

Visitors to the Gronjong Wariti Ecotourism Area are predominantly female (53.33%), aged 41–70 years (62.07%), high school graduates, self-employed, and mostly come from Kediri Regency, with a travel distance of less than 19 km—reflecting a local-regional destination affordable for the middle class.

The area's economic value, based on the TCM, is IDR 18,666,919,748.12 per year, with an average consumer surplus of IDR 129,631.39 per visit. The gap between the total economic value and the manager's actual income (IDR 1.37 billion) indicates that the area's potential has not been optimally utilized, thus opening up opportunities for implementing a proportional retribution policy.

Neither simultaneously nor partially, socioeconomic variables significantly influenced the number of visits (F sig. = 0.210; $R^2 = 0.2449$), indicating that the decision to visit is driven more by non-economic factors such as the appeal of fisheries ecotourism and family recreation motivation.

The dominant distribution of economic benefits to 78 local MSMEs (91.6% of the IDR 16.34 billion in actual revenue) demonstrates the success of the CBT model. Management is recommended to optimize potential revenue (IDR 2.05 billion/year) through digital promotions, educational tourism packages, and a Willingness to Pay-based retribution scheme to ensure the area's sustainability.

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