(Online) ISSN 2712-0554
Heritage and Sustainable Development *Original Research*
Vol. 8, No. 1, 2026, pp.709-720
https://doi.org/10.37868/hsd.v8i1.1567

Economic and preference mapping for sustainable heritage tourism: A contingent valuation method and Tree Viewers Approach

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Received Aug. 15, 2025
Revised May 9, 2026
Accepted May 18, 2026
Online Jun. 1, 2026

Abstract

This study uses the contingent valuation method (CVM) to estimate visitors' willingness to pay (WTP) for sustainable cultural heritage preservation at Borobudur Temple, while mapping sustainability preferences using Orange Data Mining decision trees. Data from 1,014 domestic tourists reveals that 71.4% are willing to pay an additional conservation fee, with an average WTP of IDR 19,965.45. Linear regression analysis shows that overall travel costs significantly decrease WTP. Conversely, higher income, higher education, and greater knowledge of sustainable heritage significantly increase it. Demographically, female and higher-income visitors demonstrate a higher WTP, whereas married visitors exhibit a lower WTP. Preference mapping identifies historical value, cleanliness, educational value, and site preservation as the primary drivers of visitor contributions. These findings demonstrate that integrating economic valuation with behavioral insights can optimize sustainable tourism management. Ultimately, enhancing visitor awareness through on-site education can simultaneously advance heritage conservation goals and increase preservation revenue.

Keywords: Willingness to pay, Sustainable cultural heritage, Borobudur Temple, Socioeconomic factors, Contingent valuation method

1. Introduction

The issue of sustainable tourism in a global context is becoming a major focus, as concerns about environmental damage, cultural heritage preservation, and social impacts from mass tourism [1], [2]. International organizations such as the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the United Nations World Tourism Organization (UNWTO) encourage the application of tourism principles that are not only oriented toward the economic aspect, but also toward environmental protection and the welfare of local communities [3]. One of the most obvious challenges is the increasing volume of waste and ecological pressure in the area of a world heritage site due to a surge in tourist numbers [4].

Indonesia has shown its commitment at the national level to the principles of sustainable tourism by designating five super priority destinations: Lake Toba, Borobudur Temple, Mandalika, Labuan Bajo, and Likupang [5]. This determination not only underscores the strategic importance of these destinations but also underscores the need for readiness from various parties to manage tourism sustainably and responsibly. One of the main focuses is the Borobudur Temple, which has been recognized as a UNESCO World Heritage site since 1991 and has very high historical, spiritual, and cultural value [6]. The increase in domestic and international tourist visits has

placed Borobudur Temple under great pressure to maintain the quality of its environment, the comfort of visitors, and the integrity of its physical structure.

The increase in the number of visitors to Borobudur Temple, both on national holidays and during the peak of the tourist season, has a significant impact on the growth of the tourism sector in the region [7]. However, while the economic impact is positive, the surge in tourist numbers also has serious environmental consequences. One of the main problems that arises is the increase in the volume of garbage, which, if not managed properly, can pollute the temple area and damage its beauty and aesthetic value [8],[9]. This issue is further emphasized in another study [10].

In addition, the high intensity of the visit also puts direct physical pressure on the temple's rock structure, which is more than a thousand years old, increasing the risk of cracking, erosion, and permanent damage to the reliefs and stupas that are part of the archaeological wealth of the site [11]. Traffic congestion around the temple is also a problem that cannot be ignored, as it not only reduces the comfort of visitors, but also increases vehicle emissions, which negatively impact the air quality and local ecosystem [12].

Recent regulatory developments at Borobudur Temple have underscored the urgency of transitioning from mass tourism to a controlled, sustainable model. The Indonesian government has implemented a daily visitor quota of 1,200 to reduce physical pressure on the temple [13]. In addition, visitors are now required to use special Upanat sandals when accessing the temple, and personal photography is restricted in certain areas to preserve the site's cultural and spiritual integrity. These policies significantly alter the visitor experience and the destination's perceived value, thereby directly influencing tourists' willingness to pay (WTP). Therefore, understanding visitor preferences and economic valuation becomes increasingly important in ensuring that conservation policies are both effective and financially sustainable. Therefore, a holistic, data-based approach is needed to restructure the tourism governance of Borobudur Temple, ensuring it continues to meet economic needs without sacrificing cultural and environmental sustainability for future generations.

This issue is the main concern for the preservation of sustainable cultural heritage, where the protection of historical and archaeological values must be aligned with efforts to maintain ecological balance and environmental carrying capacity in tourist areas [14]. This concept requires integrating preservation policies, regulating visitor numbers, educating tourists, and engaging local communities in the maintenance and management of heritage sites. If not managed thoroughly and coordinated, the pressures of mass tourism or overtourism can lead to imbalances that undermine the basic principles of sustainability in heritage tourism. This imbalance not only risks lowering the quality of the tourist experience and the destination's image but also threatens the sustainability of cultural heritage itself as a source of historical value, spirituality, and national identity, as described in Figure 1 [15]. Therefore, a holistic, data-based approach is needed to restructure the tourism governance of Borobudur Temple, ensuring it continues to meet economic needs without sacrificing cultural and environmental sustainability for future generations.

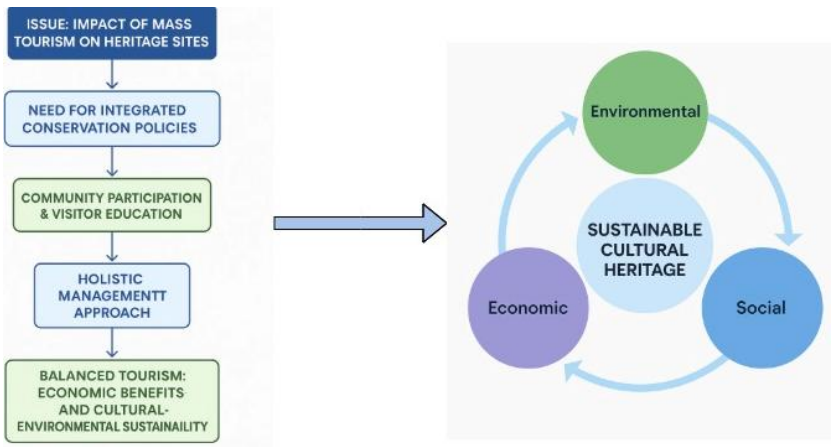

Figure 1. Deployment flow of sustainable cultural heritage

This study uses an environmental economic approach, applied through the contingent valuation method (CVM), to evaluate the economic value of environmental preservation and cultural heritage at Borobudur Temple [16]. The main focus of this research is on waste management, sustainability, and site cleanliness. The CVM enables the measurement of the value of non-market benefits with the willingness to pay (WTP) approach, which measures the extent to which tourists are willing to make a voluntary financial contribution to support the preservation of heritage sites [17], [18]. Presenting a hypothetical scenario of a sustainable conservation program, this method reveals tourists' perceptions and concerns about environmental and cultural issues in the context of heritage tourism [19].

The study also included an analysis of socioeconomic factors that can affect the amount of WTP of tourists, such as gender to assess differences in concern between men and women in supporting conservation; age as an indicator of maturity and awareness of sustainability issues; education level that reflects the ability to understand environmental and cultural issues; marital status reflecting travel preferences (alone, family, or couple); revenue that determines purchasing power and potential economic contribution to the site; as well as a perspective on sustainable heritage knowledge, which is key in measuring tourists' awareness of the importance of preserving cultural heritage and the environment in a sustainable manner.

2. Research method

This research was conducted at Borobudur Temple, located in Magelang Regency, Central Java Province, Indonesia. The data used is primary data obtained from 1,014 tourists. The methods used include CVM with a willingness-to-pay approach, followed by logistic regression. The use of these methods is based on the following research objectives:

2.1. Knowing WTP uses the CVM approach for visitors to sustainable cultural heritage

Willingness to pay has the meaning of a desire or willingness to pay someone for goods and services produced by natural resources and the environment [20]. In this study, visitors must understand the negative impact of overtourism on the durability of temple quality, so it is important to mitigate the impacts on sustainable cultural heritage. The willingness to pay is used to mitigate the sustainable cultural heritage at Borobudur Temple. Visitors are asked to choose between IDR 15,000, IDR 20,000, IDR 25,000, IDR 30,000, and IDR 35,000. The choice of costs is based on observations of visitors' ability to afford the costs. After the WTP election is carried out, the WTP calculation is carried out on the approximate average WTP with Equation 1:

$$EWTP = \sum_{i=0}^{n} WiPfi \quad (1)$$

$EWTP$ is the approximate average of WTP; Wi is the WTP value to – i; is the relative frequency; n is the number of respondents; and I is the first respondent who is willing to pay for the WTP for the conservation of the Borobudur temple. The sum of the data is converted to the population in total with the following formula.

$$TWTP = \sum_{i=0}^{n} WTPi \left(\frac{ni}{N}\right) P \quad (2)$$

Where, $TWTP$ is the total WTP; $WTPi$ is the i_{th} individual WTP; This is the number of examples that are willing to pay as much as WTPn is the sum of examples. P is the sum of the population; i is the first respondent willing to pay for the conservation of Borobudur Temple.

2.2. Socio-economic factors that affect WTP sustainable cultural heritage

To determine the socioeconomic determinants by using multiple linear regression. OLS regression is the equation used for the CVM approach with OLS in this study, as follows in Equation 3:

$$WTP_i = \alpha_i + \beta_1 TC + \beta_2 Gender_i + \beta_3 Age_i + \beta_4 Edu_i + \beta_5 Married_i + \beta_6 income_i + \beta_7 SCH_i + \varepsilon i \quad (3)$$

Where WTP Number of individual visits i during a one-year period (person), TC dummy total cost (Total cost of visiting Borobudur Temple), 1: high total cost (above average), 0: low total cost (below average), $Gender$ dummy Gender, 1: Male, 0: Female, Age Respondent Age (Year), Edu dummy Education, 1: high school education and above, 0: junior high school and below, dummy marital status, 1: married, 0 for others, $Married$, $income$ monthly income from respondents, SCH knowing the knowledge and urgency of sustainable cultural heritage.

2.3. Tobit model estimation

In addition to ordinary least squares (OLS) regression, this study employs a Tobit regression model to account for the censored nature of the WTP data. Since the WTP values are bounded within a predefined range (IDR 15,000 to IDR 35,000), using OLS may yield biased and inconsistent estimates [21], [22]. The Tobit model is appropriate for handling such censored dependent variables, as it accounts for the limited range of observed values. The model specification is expressed as follows:

$$WTP* = \beta 0 + \beta 1\text{TotalCost} + \beta 2\text{Gender} + \beta 3\text{Age} + \beta 4\text{Education} + \beta 5\text{Married} + \beta 6\text{Income} + \beta 7\text{SCH} + \varepsilon \quad (4)$$

$$WTP = 15{,}000 \text{ if } \text{WTP}* \leq 15{,}000$$
$$WTP = \text{WTP}* \text{ if } 15{,}000 < \text{WTP}* < 35{,}000$$
$$WTP = 35{,}000 \text{ if } \text{WTP}* \geq 35{,}000$$

Where WTP* represents the latent (unobserved) willingness to pay, while WTP is the observed value within the specified limits.

2.4. Mapping visitor preferences to sustainable cultural heritage

Analysis using the Tree Viewer provides a visual overview of the relationship structure among variables, identifies groups of visitors with a strong preference for sustainability principles, and indicates which factors are most decisive in their choices [23]. Decision tree visualization is also used to understand the logical path visitors follow in considering support for heritage preservation, both through financial contributions (WTP) and other conservation behaviors. The decision tree algorithm implemented in Orange divides the data into branches based on attributes that most strongly influence willingness to support the preservation of sustainable cultural heritage. Each node in the tree shows a specific preference characteristic, while the tree leaf shows the final segmentation of the visitor's preferences based on a combination of socioeconomic attributes and their perceptions.

3. Results and discussion

A total of 1014 visitors used as respondents in this study had various economic and demographic characteristics. This is because most visitors come from outside the Regency and the city of Magelang, Central Java, home to Borobudur Temple. These characteristics are shown in Table 1.

Table 1. Demographic and social characteristics

Demographic and Social Characteristics	Classification	Frequency
Gender	Man	473
	Women	541
Marital Status	Married	417
	Unmarried	597
Education	Primary School	6
	Junior High School	24
	Senior High School	398

Demographic and Social Characteristics	Classification	Frequency
	Bachelor's Degree / higher	583
Age (years)	15 – 30	645
	31 - 45	209
	46 – 60	141
	61 - 75	18
Income (IDR)	2.000.000 – 4.000.000	687
	4.000.001 – 6.000.000	140
	6.000.001 – 8.000.000	100
	Not reported	87
Knowing the problems and importance of the implementation of Sustainable Cultural Heritage	Yes	645
	No	369

Table 1 presents the demographic and social characteristics of the 1014 respondents in this study. By gender, the majority of respondents were women 541 total, (53.35%), while men accounted for 473 (46.65%). Regarding marital status, 58.89% of respondents (597 people) were unmarried, while 417 (41.11%) were married. Regarding education level, most respondents had a bachelor's degree or higher, namely 583 people (57.49%), followed by high school graduates, namely 398 people (39.25%). Only a small percentage complete their education through primary and junior high school: 6 and 24 people, respectively.

The age group with the highest number of respondents was 15–30 years (63.61%), followed by 31–45 years (20.61%), 46–60 years (13.91%), and 61–75 years (1.77%). Based on monthly income, the majority of respondents were in the range of IDR 2,000,000 – IDR 4,000,000, with a total of 687 people (67.76%), followed by the income group of IDR 4,000,001 – IDR 6,000,000, as many as 140 people (13.81%), and IDR 6,000,001 – IDR 8,000,000, as many as 100 people (9.86%). It should be noted that 87 respondents (8.58%) did not report their income. This category was retained in the analysis to preserve the total sample size and avoid potential bias due to data exclusion. Including responses to non-reported income questions ensures the dataset remains representative of the actual visitor population, particularly given that income disclosure is often a sensitive issue in survey-based research.

Interestingly, 645 respondents (63.61%) stated that they were aware of the problems and the importance of implementing sustainable cultural heritage, while 369 respondents (36.39%) admitted they were unaware of the issue. This data shows that most visitors already have an initial understanding of the importance of sustainable preservation of cultural heritage, which is an important factor in forming willingness to pay (WTP).

To measure the level of environmental contribution tourists are willing to make to support the preservation of Sustainable Cultural Heritage at Borobudur Temple, a survey was conducted with 1,014 respondents, offering several nominal WTP choices. Respondents were asked to choose the amount of WTP that best suited their ability and awareness of the importance of cultural heritage conservation. The distribution of WTP options is presented in Table 2.

Table 2. Willingness to pay for sustainable cultural heritage

WTP offered (IDR)	Percentage (%)	Number of respondents	Rank
15.000	15.29	155	II
20.000	71.40	724	I
25.000	12.43	126	III
30.000	0.49	5	IV
35.000	0.39	4	V
Total Number of Respondents	100	1.014	

Table 2 shows that as many as 15.29% (155 visitors) are willing to pay IDR 15,000 for natural change mitigation through sustainable cultural heritage that impacts the ecosystem, both social and natural, in the Borobudur Temple environment. This number is the number of visitors who know if there is currently overtourism, but do not know if it will have an impact on the balance of the ecosystem at Borobudur Temple [24]. An in-depth interview was conducted with the visitor, and he was willing to pay the amount. At the WTP of IDR 15,000, 155 visitors are willing to pay to mitigate natural changes through sustainable cultural heritage, with 107 female visitors and 48 male visitors. At the WTP of IDR 20,000, 724 visitors (71.40%) are willing to pay for the mitigation, with 385 female and 339 male visitors. The overall average willingness to pay for visitors to mitigate natural changes through sustainable cultural heritage is IDR 19,965.45 per person, so that in 1 visit, the total willingness to pay is IDR 20,225,000. This means the maximum number of visitors to the Borobudur Temple is 20,000.

The cost of WTP IV and V is IDR 30,000 and IDR 35,000, respectively. Men's willingness to pay for mitigation is greater than women's. The proportion in the IDR 30,000 WTP is 81 men, while the number of women is 45. In the WTP IDR 35,000 proportion, the number of men willing is 3, while the number of women is 2. It can be concluded that male visitors are more willing to pay the cost of mitigating natural changes above average than women. Mitigation of natural changes through sustainable cultural heritage given to the Borobudur Temple can be intended for environmental care and maintenance, as well as on temple stones that have not been damaged more intensively [25]. Given the many archaeological activities carried out by researchers, mitigation does not only focus on temples but can also include context and landscape [26]. The government, MSMEs, and the community can also develop mitigation management plans to protect the environment, such as prohibiting the use of plastic bags. The amount of tourist WTP towards sustainable cultural heritage is influenced by several socio-demographic factors, which are analyzed through OLS regression with the following results:

Table 3. Result of OLS regression

Variables	Coefficient	Std. Error	Prob.
Total Cost	-0.384	0.052	0.000
Gender	1.469	0.441	0.001
Age	-0.154	0.173	0.374
Education	-0.043	0.028	0.126
Married	-0,196	0.059	0.001
Income	0.177	0.039	0.000
SCHK	0.707	0.081	0.000
Constanta	5.790	1.732	0.001

The regression model demonstrates good explanatory power, with an R-squared of 0.612, indicating that approximately 61.2% of the variation in WTP is explained by the independent variables. The F-statistic value of 132.47 ($p < 0.001$) confirms that the model is statistically significant and jointly explains the dependent variable. These results indicate that the model is robust and suitable for analyzing the determinants of willingness to pay for sustainable cultural heritage. Table 3 indicates several factors that affect WTP for sustainable cultural heritage, including total cost, gender, marital status, income, and dummy variables for sustainable cultural heritage knowledge (SCHK), as indicated by p-values < 0.05. The results of the regression can be interpreted in the following Equation 5:

$$WTP_i = 5.79_i - 0.384TC + 1.469Gender_i - 0.154Age_i - 0.043Edu_i - 0.196Married_i + 0.177married_i + 0.177income_i - 0.707SCHK_i + \varepsilon i \quad (5)$$

The regression equation confirms that knowledge of sustainable cultural heritage (SCH) is the most influential factor in increasing WTP, as indicated by the highest coefficient (0.707), followed by gender and income variables.

The effect of total cost on WTP is that a 1% increase in total cost decreases WTP by 0.38%. These findings suggest that the higher the total travel costs incurred by visitors, the less likely they are to be willing to make additional contributions in the form of conservation levies or financial support towards the preservation of heritage sites [27], [28]. This can be explained by visitors' rational tendency to balance their travel expenses, especially when transportation, accommodation, and consumption costs already represent a significant burden on the budget. In this context, travelers tend to prioritize the primary needs of the trip over voluntary contributions to conservation, especially if the conservation benefits are not directly visible during their visit. Therefore, a WTP-based management strategy needs to consider the limits of tourists' purchasing power, as well as the importance of transparency and education regarding the allocation of conservation funds, to realistically and sustainably maximize WTP.

The second influencing factor is gender; women have a higher WTP difference than men by 1.47%. Women generally show a higher level of sensitivity and concern for environmental and cultural conservation issues, which is reflected in their willingness to contribute financially to the sustainability of cultural heritage sites [29], [30]. Psychologically and socioculturally, this aligns with previous studies indicating that women are more responsive to conservation campaigns and have a high level of empathy for sustainability issues. Therefore, communication and public education strategies in the context of cultural heritage preservation can be optimized by considering gender segmentation, in particular by targeting women's groups as agents of promoting concern for the environment and culture [31]. While the regression results indicate that female visitors have a higher overall willingness to pay, the descriptive analysis in Table 2 shows that male visitors are more represented in the higher WTP categories (IDR 30,000 and above). This apparent difference can be explained by the distribution of responses: male visitors tend to exhibit more extreme values, while female visitors show a more consistent willingness to pay across the majority of respondents. Therefore, the regression results reflect the overall tendency in the sample, whereas the descriptive statistics highlight variations within specific WTP categories.

Marital status is also a factor that affects WTP; married visitors have a WTP amount that is 0.20% lower than unmarried visitors. This difference can be attributed to higher spending priorities in married visitors, who tend to prioritize household or family needs before allocating budgets for additional contributions such as preservation levies [32]. On the other hand, unmarried travelers may have greater financial flexibility and focus more on idealistic values and personal preferences, including concerns about environmental and cultural preservation. These findings demonstrate the importance of a more adaptive, segmented approach to educational strategies and to promoting conservation contributions, such as offering incentives for families or educational packages grounded in sustainability values to attract participation from married visitors.

Income level is one of the most crucial factors in determining WTP, especially among visitors to the Borobudur Temple seeking sustainable cultural heritage. Visitors with higher income (1%) have a higher WTP of 0.18%. Tourists with higher income levels tend to be more willing to pay, suggesting that purchasing power plays an important role in contribution decisions to the preservation of cultural sites [14], [16]. These findings support microeconomic theories that state that preferences and the ability to consume public goods or services, such as heritage preservation, are strongly influenced by income levels. It also emphasizes the need for different tariff policies or incentives based on the grouping of economic capabilities, so that site preservation remains inclusive without burdening low-income groups [33]. Therefore, public engagement strategies can focus on raising awareness among high-income groups to encourage greater contributions, for example, through voluntary donation schemes or value-oriented tour packages.

The last factor is that visitors who understand the importance of implementing sustainable cultural heritage have a WTP that is 0.7% higher than those who do not. This shows that understanding and awareness of the concept of sustainable preservation play a significant role in encouraging tourists' active participation through financial contributions [34]. These findings emphasize the importance of public education as the primary strategy for managing tourist destinations based on cultural heritage. Effective education not only increases understanding

of the historical and ecological value of sites, but can also shape more responsible tourist behavior, whether in maintaining cleanliness, respecting the site, or being willing to pay more to support long-term preservation [16]. Therefore, visitor involvement through information media, cultural recreation programs, and hands-on experience-based educational approaches is very important in building sustainable support for sites such as Borobudur Temple.

The findings of this study are highly relevant to recent policy changes at Borobudur Temple. The implementation of visitor quotas (1,200 visitors per day), mandatory use of Upanat sandals, and restrictions on personal photography represent a shift toward a low-volume, high-value tourism model [13]. These regulations may enhance the site's perceived exclusivity and conservation value, thereby positively influencing visitors' willingness to pay. However, they may also reduce certain aspects of visitor satisfaction, particularly for tourists who value freedom of exploration and personal documentation. In this context, the significant role of sustainable cultural heritage knowledge (SCH) identified in this study becomes crucial. Increasing visitor awareness through education and interpretation programs can help align visitor expectations with conservation goals, thereby mitigating potential dissatisfaction while simultaneously increasing WTP. Policy implementation and visitor education should be integrated to ensure that sustainable tourism management not only protects the site but also maintains economic viability. To ensure robustness, a Tobit regression model was also estimated. The results are consistent with the OLS findings, indicating that income and knowledge of sustainable cultural heritage remain significant positive determinants of WTP, while total cost negatively affects WTP. The Tobit model further confirms that the estimated coefficients are stable and not significantly biased due to data censoring. This consistency strengthens the reliability of the empirical findings and supports the validity of the policy implications derived from the study. To gain a deeper understanding of the factors that affect visitors' willingness to pay (WTP) for the implementation of Sustainable Cultural Heritage, preference mapping was carried out using the decision tree algorithm in Orange Data Mining. This approach allows for a clear visualization of decision-making paths based on visitor characteristics and perceptions of several important aspects of tourist destination management [35], such as historical value, natural beauty, cleanliness, and security level. Each branch of the decision tree reflects the segmentation of visitors based on their answers, as well as the average WTP for each group. This method focuses not only on producing quantitative data but also on providing structural insights into how visitor preferences are formed hierarchically and interactively among variables, as shown in Figure 2.

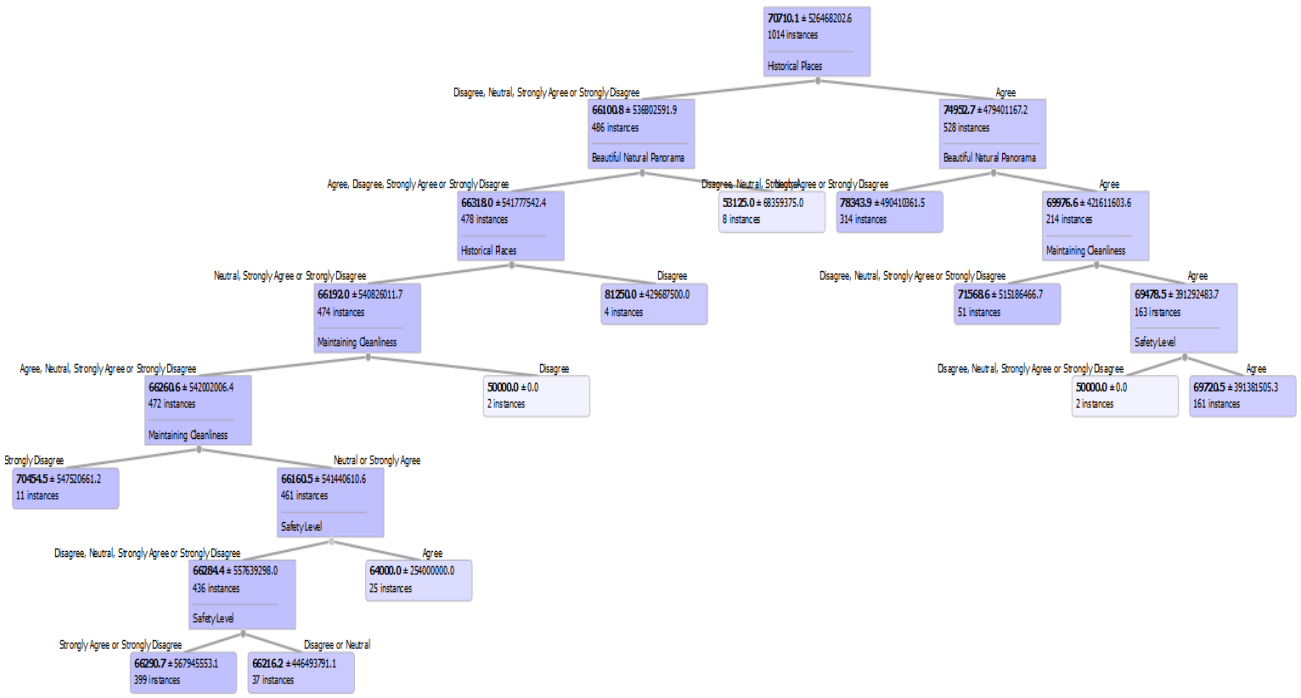

Figure 2. Mapping of visitors' preferences towards sustainable cultural heritage

Analysis of tree-viewer images from the mapping of visitors' preferences for Sustainable Cultural Heritage shows that visitors' perception of the historical value of tourist sites is the main factor influencing willingness to pay (WTP). Visitors who value historical value tend to have higher WTPs, with average values reaching IDR 66,206 to IDR 70,454. This reflects that awareness of the importance of cultural heritage directly encourages visitors to be more willing to pay to support the preservation of the site [36]. In addition, tree branches show that WTP is also influenced in stages by the perception of natural beauty, cleanliness, and the level of safety of tourist areas [37].

If visitors do not pay attention to historical value, then the natural beauty variable becomes the next separator. In this case, visitors who still appreciate the beauty of nature show a higher WTP compared to those who don't. The combination of positive perceptions of the cleanliness and safety of tourist areas also significantly increased WTP, as evidenced by consistent values above IDR 69,000 in some branches. On the other hand, if the perception of these factors is negative or neutral, the WTP decreases sharply to IDR 50,000; even in extreme conditions, it reaches only IDR 31,250 for visitors who do not appreciate historical or natural aspects. Thus, it can be concluded that visitor WTP is not only influenced by economic factors, but also by subjective preferences for non-material values, such as historical, aesthetic, cleanliness, and safety values [38], [39].

Therefore, a sustainable cultural heritage tourism management strategy should emphasize enhancing visitors' perceptions of these aspects through education, effective regional governance, and active public involvement in cultural heritage preservation. Future tourism policies at Borobudur Temple should integrate economic valuation insights with visitor management strategies to ensure that conservation measures are financially supported by visitor contributions.

4. Conclusions

This study indicates that most visitors to Borobudur Temple are willing to make additional donations to support the preservation of cultural heritage through the CVM. The highest WTP value was recorded at IDR20,000, reflecting public awareness of the importance of sustainable cultural heritage. Socioeconomic factors such as gender, marital status, income, and knowledge of sustainability significantly influence WTP amounts. In addition, preference analysis shows that cleanliness, safety, educational value, and site authenticity are top priorities for visitors' views of sustainable tourism practices. For this reason, a more inclusive, data-driven management strategy is needed. Governments and site managers should establish flexible retribution schemes based on the WTP, expand education programs on the value of cultural heritage sustainability, and involve local communities in site management. The application of technology to regulate visit capacity is also critical to prevent excessive pressure on the site environment. With this collaborative approach, Borobudur Temple can continue to be preserved without sacrificing its tourism attraction and historical and spiritual value for future generations.

Declaration of competing interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

Funding information

No funding was received from any financial organization to conduct this research.

Acknowledgements

The author wishes to convey heartfelt thanks to all individuals and organizations that contributed to the successful completion of this research. Special acknowledgment is directed towards the Faculty of Economics and Business at Universitas Sebelas Maret for their academic and institutional assistance during the course of

this study. Additionally, gratitude is expressed to the respondents who generously took part in the survey, offering invaluable insights that were crucial to the success of this research.

Author contribution

Evi Gravitiani oversaw the research process and offered essential insights regarding the theoretical framework, methodology, and interpretation of the results. Her contributions were vital in enhancing the manuscript and maintaining academic rigor throughout the writing process. Ainina Ratnadewati played a key role in the research design, conceptual framework, data collection, and manuscript preparation. Additionally, she was responsible for statistical analysis and creating the visitor preference mapping using the decision tree model in Orange Data Mining. Aulia Hapsari Juwita supported the literature review, questionnaire design, and data validation. She also analyzed socioeconomic variables that affect WTP and assisted with the final draft review. All authors reviewed and approved the final manuscript.

Ethical approval statement

Our institution does not require research ethics approval for reporting individual cases or case series.

Informed consent

Informed consent was obtained from all individual participants included in the study. Respondents were informed of the research's purpose and participated voluntarily.

Use of AI in Writing

The authors used ChatGPT to refine language and improve clarity. All intellectual content, data analysis, and interpretations remain the sole responsibility of the authors.

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