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MORALITY BEFORE KNOWLEDGE

Environmental carrying capacity and economic feasibility of mangrove-based coastal ecotourism

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ABSTRACT

Background: This study aims to analyze the economic feasibility and environmental impact of coastal tourism development using an Environmental Economy approach. The research is grounded in the urgency of promoting sustainable local economic development, particularly in coastal areas that hold high tourism potential but are vulnerable to environmental degradation. **Methods**: The methods employed include primary and secondary data analysis, in-depth interviews, direct observation, and Environmental Cost and Benefit Analysis. **Findings:** The findings indicate that the development of the Cemara Sewu Beach tourism area is economically feasible, with a benefit-cost ratio of 1.77 and a net present value (NPV) of IDR 129,611,000. Environmentally, the area demonstrates sufficient carrying capacity, with community-based management identified as a key factor in ensuring sustainability. **Conclusion**: In conclusion, the project is viable and should be pursued using an environmental economic approach that balances economic gains with ecological conservation. **Novelty/Originality of this article:** The novelty of this research lies in the integrated application of economic feasibility analysis and environmental carrying capacity assessment as a unified framework for sustainable tourism planning.

KEYWORDS: environmental carrying capacity; environmental economy; tourism feasibility.

1. Introduction

Indonesia is home to the world's largest mangrove forest areas, with an estimated coverage of 8.60 million hectares (Arifanti et al., 2021). These ecosystems provide numerous benefits to the environment and society, including carbon sequestration, coastal protection, and support for fisheries (Alongi, 2004). However, mangrove forests are facing various threats such as deforestation, land conversion, and pollution. The degradation and loss of these ecosystems can result in negative impacts on the environment and society, including the loss of biodiversity, decreased resilience to climate change, and reduced economic opportunities.

However, mangrove forests are facing various threats such as deforestation, land conversion, and pollution. The degradation and loss of these ecosystems can result in negative impacts on the environment and society, including the loss of biodiversity, decreased resilience to climate change, and reduced economic opportunities. Furthermore, the assessment of mangrove ecotourism can provide valuable information about the

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potential economic benefits of these ecosystems, which can promote their conservation and sustainable management (Dharmawan et al., 2020; Koens et al., 2018).

Mangrove ecotourism has become increasingly popular in Indonesia, with visitors drawn to the scenic beauty and unique biodiversity of these ecosystems. This has led to the development of various tourism activities such as kayaking, bird watching, and nature walks. Despite the growing interest in mangrove ecotourism, there is limited information on tourists' willingness to pay (WTP) for these activities. This information is important for understanding the potential economic value of mangrove ecotourism and for developing policies and strategies that promote sustainable tourism development.

The objective of this study is to assess tourists' willingness to pay (WTP) for mangrove ecotourism in Indonesia. Specifically, the study aims to determine the factors that influence tourists' WTP, to estimate the economic value of mangrove ecotourism, and to provide recommendations for the conservation and sustainable management of these ecosystems. The findings of this study can inform policymakers, tourism operators, and other stakeholders in developing strategies that promote sustainable tourism development and conservation of mangrove ecosystems.

Environmental valuation has typically been taken into account when discussing non-market valuation. Its objective is to determine the financial value of the welfare of individuals and social groups due to environmental improvement measures or the costs associated with environmental degradation (Guijarro & Tsinaslanidis, 2020). Environmental valuation techniques have been used to calculate the advantages and disadvantages of using environmental assets, enhancing their quality, or repairing ecological harm, and they must take the complexity of the situation into account. For instance, national parks provide economic advantages beyond tourism; they frequently help draw and keep residents, entrepreneurs, businesses, and retirees with their natural features and recreational opportunities (Guijarro & Tsinaslanidis, 2020).

Therefore, environmental valuation is closely related to the economic aspect of sustainability. Existence value, a part of the non-use value, results from the notion that some people indicate a willingness to pay to preserve a part of biological variety despite the fact that they neither use it themselves nor intend for others to gain from it (Bamwesigye et al., 2020). This could be a position, population, or species someone just wants to be around. Existence value includes people's genuine feelings regarding wildlife. The importance of these values varies and shifts based on the interests of the stakeholders (Bamwesigye et al., 2020).

Additionally, a list of sustainability indicators for tourist destinations was developed and validated based on the perspectives of local stakeholders, residents, and visitors (de Araújo et al., 2022). The four categories of indicators—economic, socio-cultural, environmental, and institutional sustainability—are all interrelated (de Araújo et al., 2022). This approach effectively expands the traditional "triple bottom line" of sustainability within tourism contexts (de Araújo et al., 2022). These four dimensions must be taken into account when assessing a destination's sustainability (de Araújo et al., 2022). To ensure long-term benefits for all stakeholders, tourism development should be planned and implemented with a strong focus on inclusive participation, particularly involving local communities in the overall process (de Araújo et al., 2022).

The often-overlooked importance of ecosystems to human development and well-being is quantified through environmental value (Olukolajo et al., 2023). Environmental concerns are being given more weight in decision-making as a result of growing demand for sustainable development and better resources (Olukolajo et al., 2023). A variety of strategies and methods have been developed by economists for creating economic value in the environment (Olukolajo et al., 2023). The practice of valuing has been transformed by the knowledge of these methods (Olukolajo et al., 2023). Aspects of economic valuation are covered in some of the literature on environmental valuation (Olukolajo et al., 2023). The market impact, financial factors, and willingness to pay are some of the important factors that can be taken into account when valuing environmental factors (Olukolajo et al., 2023).

The implementation of the environmental evaluation and the community's willingness to pay can be applied to mangrove tourism. Mangrove forests are a group of particular plants that grow and flourish in sheltered coastal locations in both tropical and subtropical regions, according to science (Muzani et al., 2020). Tropical vegetation that can grow and develop in mucky coastal tidal zones makes up mangrove ecosystems (Marlianingrum et al., 2021). Tropical climates often have mangroves along their coastlines, which are particularly beneficial to ecosystem services (Marlianingrum et al., 2021). 3.86 million ha (18–23%) of the 19.9 million ha of global mangroves are covered by the mangrove ecosystems of Indonesia (Marlianingrum et al., 2021). Because mangroves have the capacity to absorb carbon in much greater quantities than other plant species, they play a crucial role in the sustainability of life on Earth (Muzani et al., 2020). As a result, many parties, including the Indonesian government, continue to build mangrove forests as a means of mitigating the environmental issues that are currently the focus of the globe, specifically climate change (Muzani et al., 2020).

Besides that many different ecosystem services are provided by mangrove forests. As tropical and subtropical ecosystems, they are essential for providing ecosystem services (ES) to local and regional coastal communities, thereby improving the quality of life for those communities (Getzner & Islam, 2020). These locally and regionally significant ecosystem services include providing ES (such as timber and fuel wood), supporting ES (such as breeding and nursery habitats for fish species), and regulating ES (such as protection from storms and floods, erosion control) (Getzner & Islam, 2020). Global relevance can be found, for example, in the regulation of the carbon and nutrient cycles as well as cultural ecosystem services. The welfare advantages and contributions people receive from ecosystems are referred to as ecosystem services. Therefore, ecosystem services are known as "Nature's contributions to people (Getzner & Islam, 2020)"

A survey used for environmental valuation studies must use the probability sampling technique, according to the National Oceanic and Atmospheric Administration (NOAA) panel report on CVM recommendations (Belay et al., 2020). Additionally, since the results will be statistically interpreted, the sampling technique is more appropriate for such quantitative research than the nonprobability sampling technique. Therefore, probability sampling techniques were used in the current study (Belay et al., 2020). The multi-stage sampling procedure was used to choose the sample respondents. According to a review of these studies, which included urban green spaces, forest parks, marine parks, and wildlife parks, the CVM involves asking people their purchasing decisions on an amenity at the stated prices in a fictitious marketplace (Song et al., 2021).

The WTP calculated using CVM data may be crucial in helping decision-makers decide how best to preserve environmental resources while maximizing societal well-being (Song et al., 2021). The WTP values of respondents in a fictitious scenario that represents the alterations and enhancements of the examined environmental goods and services are what are most important to the CVM study (Song et al., 2021). The dichotomous-choice format is the most popular technique when compared to other WTP elicitation techniques of the CVM (such as open- ended questions (Bateman et al., 1995), a payment card, and an iterative bidding approach), as it has the advantage of simulating the behavior in regular markets and thereby encouraging survey participants to make incentive-compatible responses (Song et al., 2021).

The costs and benefits of aquaculture to society are hotly contested, and as spreads and becomes more intensive in many nations, there are worries about its environmental, social, and economic implications, including externalities (Custódio et al., 2020). For local populations, mangrove conservation is probably more advantageous because it offers greater economic value. For instance, in several scenarios for the growth of aquaculture, the stakeholder preferences regarding mangrove ES were evaluated using the Contingent Valuation Method (CVM) (Olukolajo et al., 2023). Most participants—56–74%—preferred that ES be kept in its current status, followed by 21–35% who preferred the existing state, while only 6–9% supported the scenario for rapid aquaculture development (Custódio et al., 2020).

2. Methods

2.1 Data collection method

To perform trustable research, the data collection method allowing to gain the originality of the insight and first-hand knowledge. Data collection is a systematic process of gathering observation or measurements, whether for performing research for business, governmental or academic purposes, data collection allows to gain first-hand knowledge and originality insights into research problem (Bhandari, 2023).

To collect data it's important to use first-party data. First party data collection is the methode to obtain data directly from your sources. This data source is significantly valuable because the information is first-hand from consumers, eliminating any misinterpretations and errors. First-party data collection is the most effective and reliable form of data collection. (Strategus, 2023). The purpose of this researcj is to know the willingness to pay for entering Taman Mangrove Pantai Indah Kapuk. In order to get data about respondents' willingness to pay to access mangroves, an online form was used as a practical technique of gathering information from a wide range of respondents. This approach ensures direct and trustworthy information from those who genuinely have an interest in visiting mangroves by utilizing first-party data.

The use of an online form has a number of benefits. First off, it provides a user-friendly layout that makes it simple for responders to complete the form and enter correct data. In order to increase respondent engagement and minimize potential bias in the results, best practices for survey construction should be taken into consideration when designing the form (Minto et al., 2017). Second, the online form makes it possible to collect data quickly from a bigger sample size, providing a more thorough analysis of people's willingness to pay to access mangroves. This approach ensures scalability because it can handle a greater number of answers than conventional offline data collection techniques.

Additionally, the form's inclusion of demographic fields like age, gender, and location facilitates the analysis of differences in willingness to pay depending on these factors. This demographic information enables targeted analysis and assists in discovering any potential patterns or trends in respondents' willingness to pay (Denscombe, n.d.). Furthermore, this approach guarantees direct access to people who genuinely want to visit mangroves because it makes use of first-party data. First-party data is information that is gathered directly from people who voluntarily give it to us, resulting in improved data quality and reliability. This strategy gets rid of the intermediary biases that can appear when using outside data sources. Overall, using an online form to collect information about willingness to pay for access to mangroves is a reliable and effective technique of gathering data (Musliha et al., 2023). It enables a bigger sample size, encourages user-friendly interactions, enables demographic data-driven focused analysis, and ensures the use of trustworthy first-party data.

2.2 Analysis methods

The location carried out in distributing questionnaires about mangrove ecotourism on March 22, 2023 at the Mangrove Nature Ecotourism Park Pantai Indah Kapuk, South Jakarta. The questionnaires were collected in two different ways: online and at the Pantai Indah Kapuk Mangrove Nature Ecotourism Park. We distributed this questionnaire to a target group of people who were familiar with the Pantai Indah Kapuk Mangrove Nature Ecotourism Park region. When visiting the Pantai Indah Kapuk Mangrove Nature Ecotourism Park, there are a number of questions on the survey. At least 150 people who can complete the questionnaire are our target audience. Purposive sampling, which represents a variety of non-probability sampling, was used to be selective while reducing the audience. Selective or subjective (judgmental), purposeful sampling depends on the researcher to choose the units (people, etc.). Extreme (deviant) case sampling, whole population sampling, and expert sampling are all included. It also contains maximum

variation sampling, homogenous sampling, and typical case sample. Maximum variation sampling is a categorized sort of sampling that enables the researcher to compile a diverse group of participants with various perspectives in order to analyze a specific phenomenon and acquire deeper understanding from all angles.

2.2.1 Filtering question, identity, age

Filter question is used to make a specific respondent or determine eligibility for detailed follow-up questions (Magnus & Chen, 2022). In this questionnaire, the respondent should be an Indonesian who has visited Pantai Indah Kapuk Mangrove Nature Ecotourism Park. Before proceeding to the intrinsic factors (age, level of education, and marital status), it is important to refer to Cheek, who stated that identity refers to the information about oneself or various attributes or characteristics used when constructing self-definitions. Therefore, the questions used to determine identity will be correlated with these factors. This questionnaire uses several aspects to identify the respondent, including name, age, gender, domicile, job, last education, marital status, income per month, and outcome per month.

Table 1. Indicator of age

Indicator	Question Statement
Late teenagers have high curiosity	Pantai Indah Kapuk supports all activities that I want/need to do, especially in terms of learning about new things in the environment.
Early adulthood has pleasure in protecting and increasing knowledge about the environment by visiting existing ecotourism.	You are aware that maintaining the environment. The environment at the Pantai Indah Kapuk mangrove ecotourism park cleanliness is the responsibility of every visitor so that learning related to the mangrove ecotourism park is not disturbed.
Last education Bachelor's degree more easily absorbs information and knowledge	Someone with more education will find it simpler to learn new things and use them in their daily lives. It has a significant impact on changes in one's attitude and conduct when evaluating an object and is connected to social status.
Women has more control over their emotion	You can calm your feelings when something unexpected happens in Bogor Botanical Garden

Age is a measurement of a person's existence from birth to the time of the study, which may be based on years. The age group is divided into four groups: children and early adolescents (7-17 years), late adolescents (18-25 years), early adults (26-30 years), and late adults to the elderly (>31 years). The age at which a person is most productive for activities is the basis for age group segmentation. The rationale of the economic age division is that the age group of 0 to 15 years is unproductive, 16 to 50 years is productive, and above 51 years is unproductive. The age of visitors to the Pantai Indah Kapuk Mangrove Nature Ecotourism Park should be in the range of 18-30 years, which at that age is a productive age that is still not susceptible to disease.

Table 2. Indicator of marital status

Indicator	Question Statement
Single Person like to spent their time in Taman Mangrove Pantai Indah Kapuk because with spent time in Pantai Indah Kapuk they can relase their stress from city life and job life.	Pantai Indah Kapuk Mangrove Park has an environmental service function
Marriage Couple like to spent their time with their family in Taman Mangrove Pantai Indah Kapuk because you can breathe fresh air	Pantai Indah Kapuk Mangrove Park to support visitor activities such as sports, picnics, or just a breath of fresh air

Marriage people that have children like to spent their holiday in Taman Mangrove Pantai Indah Kapuk because their children can have interaction with environment.	Pantai Indah Kapuk Mangrove Park can be used for children's interaction with the environment.

Mangrove forests are essential ecosystems that assist the environment in a variety of ways, including carbon sequestration, coastal protection, and habitat for a wide range of flora and fauna. Given the fragile state of mangrove ecosystems worldwide, feasibility assessments are essential for determining if conservation programs will be successful. The impact of marital status on these research hasn't been thoroughly investigated, though. Understanding the possible effects of marital status can improve the success of projects for mangrove conservation and encourage more inclusive and long-lasting approaches.

2.2.2 Level of education

Feasibility studies play a crucial role in assessing the viability of mangrove conservation projects, and understanding the factors that contribute to their success is essential. However, the influence of education level on these studies remains relatively unexplored. This review seeks to investigate the potential implications of education level in enhancing the effectiveeducation level can influence the adoption of sustainable practices and technologies in mangrove conservation projects. Individuals with higher education levels are more likely to be aware of and embrace innovative approaches and technologies that can enhance the feasibility and effectiveness of conservation effortsness of mangrove conservation initiatives and promoting more informed and sustainable strategies.

Table 3. Indicator of last education

Indicator	Question Statement
University student think that within visit Taman Mangrove Pantai Indah Kapuk they can raise more knowledge about environment	Pantai Indah Kapuk Mangrove Park can increase your knowledge about the environment
Bachelor degree's think that Taman Mangrove Pantai Indah Kapuk have an environmental service function	Pantai Indah Kapuk Mangrove Park has an environmental service function
People with diploma as their last education think that with visiting Pantai Indak Kapuk Mangrove as way to gain their knowledge about environment.	You visit the Pantai Indah Kapuk Mangrove Park as a way to gain knowledge about the environment.

3. Result and Discussion

3.1 Characteristics of visitors/respondents

Respondents used in this study are Indonesians who know and have visited Mangrove Pantai Indah Kapuk, so it is hoped that these visitors can describe or represent their experiences at these tourist attractions. The total number of respondents was 162 people. The background of visitors who come to an area is diverse. Differences in visitor background can be seen in terms of age, education level, and marital status which will lead to different desires and assessments, especially for willingness to pay.

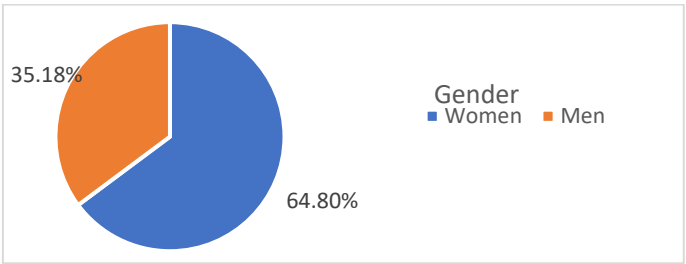

Fig. 1. Characteristics of the gender class visitors in Mangrove PIK

3.2 Result of validity and reliability

The validity values of each factor were calculated and all results were valid. The variable value of the reliability results of each factor was calculated and varied into three variations such as acceptable, good, and questionable. The validity and reliability factors are age, education level, martial status.

Table 4. Summary of validity and reliability of age

Age							
Subject	Q1	Q2	Q3	Q4	Q5	Average	Total
1	5	5	5	4	4	4.6	23
2	5	2	4	4	5	4	20
3	5	5	5	5	5	5	25
4	4	5	3	4	4	4	20
5	5	5	3	5	4	4.4	22
6	5	3	3	5	4	4	20
7	3	5	4	3	5	4	20
8	5	3	3	4	4	3.8	19
9	5	4	3	5	4	4.2	21
10	5	4	4	5	4	4.4	22
11	5	3	5	3	5	4.2	21
12	4	4	4	4	4	4	20
13	5	3	4	5	4	4.2	21
14	4	3	3	3	3	3.2	16
15	3	3	3	1	3	2.6	13
16	5	4	2	5	5	4.2	21
17	5	5	5	5	5	5	25
18	5	4	5	5	5	4.8	24
19	4	4	5	4	5	4.4	22
20	5	4	5	4	4	4.4	22
Validity	0.634	0.554	0.601	0.773	0.689		
Status	Valid	Valid	Valid	Valid	Valid		
Variances	0.44	0.79	0.89	1.027	0.41		7.33
Variable	Description	Value	Internal Consistency				
K	#items/question/ components	5					
$\sum s^2y$	Sum of the item variances	3.55					
s^2x	Variances of total scores	7.32	Quistionable				
α	Cronbach's	0.643					

Education Level						
Q1	Q2	Q3	Q4	Q5	Average	
5	5	5	5	5	5	25
5	5	5	5	5	5	25
5	5	5	5	4	4.8	24
3	5	4	3	5	4	20
5	5	3	4	4	4.2	21
5	5	3	5	5	4.6	23
3	3	3	4	4	3.4	17
5	4	3	5	4	4.2	21
5	5	3	5	5	4.6	23
5	4	4	5	4	4.4	22
4	3	5	3	5	4	20
4	4	4	4	4	4	20
5	5	5	5	5	5	25
4	4	4	4	4	4	20
5	4	3	4	4	4	20
5	5	5	5	4	4.8	24

5	5	5	5	5	5	25
5	5	4	5	5	4.8	24
5	4	5	5	5	4.8	24
5	4	5	5	4	4.6	23
0.755	0.711	0.604	0.758	0.491		
Valid	Valid	Valid	Valid	Valid		
0.427	0.447	0.727	0.447	0.25		5.01
Variable	Description	Value	Internal Consistency			
K	#items/questions /components	5				
$\sum s^2y$	Sum of the item variances	2.3	Questionable			
s^2x	Variance of total scores	5.01				
α	Cronbach's	0.6764				

Summary of validity and reliability of marital status

Q1	Q2	Q3	Q4	Q5	Average	Total
5	5	5	4	4	4.6	23
5	5	5	5	5	5	25
5	5	5	5	5	5	25
4	4	4	4	4	3.8	19
4	5	4	5	5	4.4	22
5	5	5	3	3	4.2	21
3	2	3	2	2	2.4	12
4	5	3	2	2	3.2	16
5	5	2	5	5	4.4	22
5	5	4	4	4	4.4	22
4	3	5	4	4	4	20
4	4	5	5	5	4.6	24
5	5	5	5	5	5	25
4	4	4	4	4	4	20
4	5	3	4	4	4	20
4	5	5	5	5	4.8	24
5	5	5	5	5	5	25
5	5	5	5	5	5	25
5	4	5	5	5	4.8	24
5	4	5	4	4	4.4	22
0.766	0.638	0.622	0.884	0.884		
Valid	Valid	Valid	Valid	Valid		
0.35	0.65	0.9875	0.8875	0.8875		10.587
Variable	Description	Value	Internal Consistency			
K	#items/questions/ components	5				
∑s2y	Sum of the item variances	3.762	Questionable			
s2x	Variance of total scores	10.587				
α	Cronbach's	0.805				

3.3 Correlation between dependent and independent variable

3.3.1 Regression model analysis

The analysis used multiple regression analysis to analyze the relationship between willingness to pay as the dependent aspect, with the independent variables (average age, level of education, and marital status). This analysis used all data in 162 subjects.

The hypothesis in this study is as follows: the null hypothesis (H_0) states that there is no influence of age, educational background, and marital status on the willingness to pay for admission to the PIK Mangrove Ecotourism Park. On the other hand, the alternative hypothesis (H_a) suggests that age, educational background, and marital status do have an influence on the willingness to pay for entrance tickets to the PIK Mangrove Ecotourism Park. The analysis used SPSS, and the result is shown in Table 5.

Table 5. Summary of multiple regression

ANOVA					
	df	SS	MS	F	Significance F
Regression	3	141.09	47.03	2.41	0.068
Residual	158	3082.35	19.50		
Total	161	3223.45			
Regression Statistics					
Multiple R	0.209				
R Square	0.043				
Adjusted R Square	0.025				
Standard Error	4.416				
Observations	162				
	Intercept	X1	X2	X3	
Coefficients	31.25	-0.32	-3.13	0.067	
Standard Error	5.814	1.00	1.53	1.40	
t Stat	5.37	- 0.31	- 2.05	0.04	
P-value	2.685E-07	0.749	0.04	0.961	
Lower 95%	19.77	-2.31	- 6.159	-2.71	
Upper 95%	42.74	1.670	-0.115	2.85	
Lower 95.0%	19.77	-2.31	-6.15	-2.71	
Upper 95.0%	42.74	1.67	-0.11	2.85	

Looking at table 6, the corelation value between dependent and regresor is 0.20 from multiple R. In the low category according to the correlation category table.

Table 6. Correlation category table

Coefficient Interval	Relationship Level
0.80 - 1.000	Very Strong
0.60 – 0.799	Strong
0.40 – 0.599	Moderately Strong
0.20 – 0.399	Low

The regression model used in this analysis is expressed as:

$$Y = -0.3229238X_1 - 3.1371579X_2 + 0.06757389X_3 \quad \text{(Eq. 1)}$$

The coefficient of determination is represented by the Adjusted R Square value, which is 0.02 or 2%. This indicates that the independent variables (X) are able to explain only 2% of the variation in the dependent variable (Y), while the remaining 98% is influenced by other factors outside the model. When comparing the Significance F value of 0.06 to the alpha level of 0.05, it can be concluded that the model does not show a significant relationship between the independent and dependent variables, since the significance value is greater than alpha.

Looking at the individual variables: age has a negative coefficient, which means it has a negative effect on willingness to pay (WTP). However, this effect is not statistically significant, as the p-value (0.7) is higher than the alpha level. Education level also shows a negative effect on WTP, but unlike age, this effect is statistically significant with a p-value of 0.04, which is below the alpha threshold. Meanwhile, marital status has a positive coefficient, indicating a positive relationship with WTP, but this effect is not significant either, with a p-value of 0.96. Although the regression model does not qualify as a good

model in terms of explanatory power, it can still be used to observe the direction of the relationship among variables. Based on the analysis, both age and education level have negative relationships with willingness to pay, meaning that increases in these variables are associated with a decrease in WTP. In contrast, marital status has a positive relationship, suggesting that individuals who are married may be more willing to pay for entrance to the PIK Mangrove Ecotourism Park.

3.4 Characteristics of mangrove Pantai Indah Kapuk visitors/respondents based on the age iindicator

The sample during the study showed that visitors came from various age levels. The age level indirectly affects a person's decision-making process in choosing a tourist attraction. Most of the visitors who come to the beautiful kapuk beach mangrove are adolescents, groups with age classes 7-17 years as much as 2%, early adolescent age groups with age classes 18-25 years as much as 44%, early adult groups with age classes 25-30 only 43% and above 30 years only 11%. With increasing age, a person is expected to be able to be oriented, control emotions, and other traits that indicate the intellectual and psychological maturity of the person.

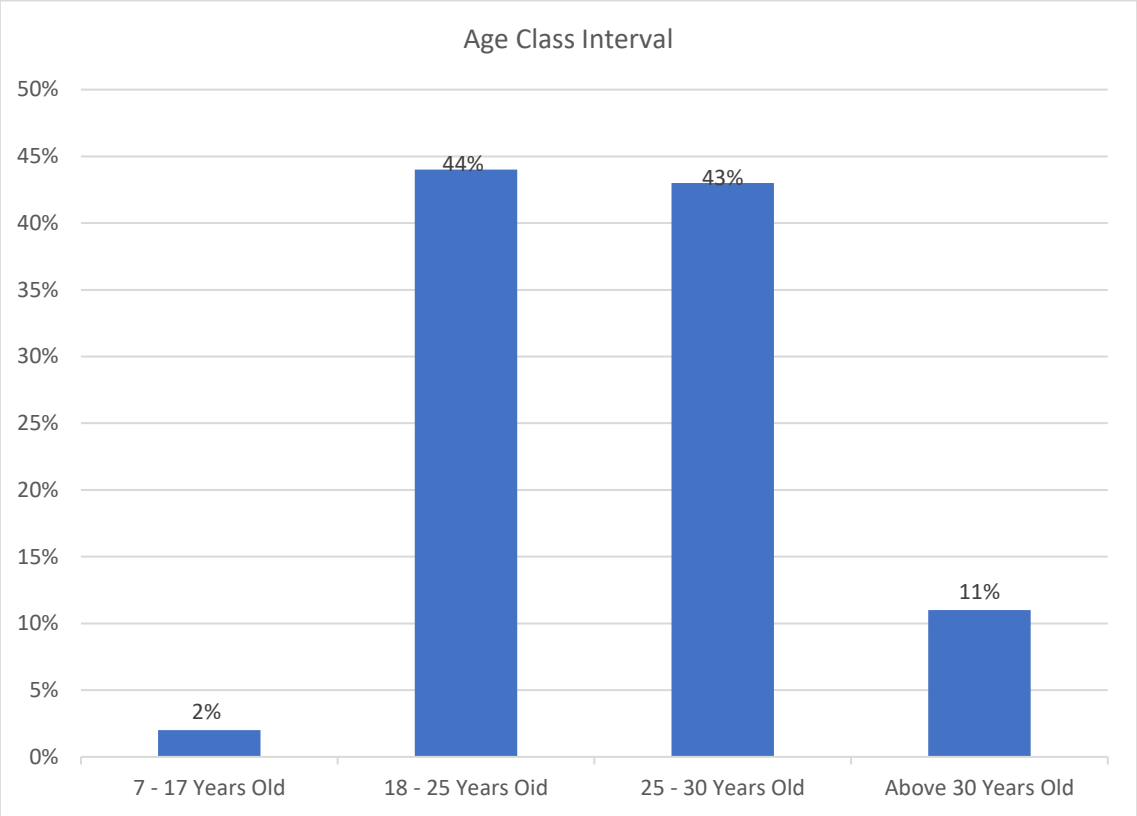

Fig. 2. Characteristics of the age class

3.5 Characteristics of mangrove Pantai Indah Kapuk visitors/respondents based on the level of education indicator

The latest education or being taken is the purpose of the level of education. The level of education is related to social class so that it has a considerable influence on changes in one's attitude and behavior in assessing an object. A high level of education will make it easier for a person to absorb information and apply it in everyday life. The results of the analysis state that most visitors who have visited the mangrove have an elementary / MI education level of 1%, junior high school 1%, high school 28% Bachelor (S1, S2, S3) 60%, Diploma 4% and Masters as much as 4.32%.

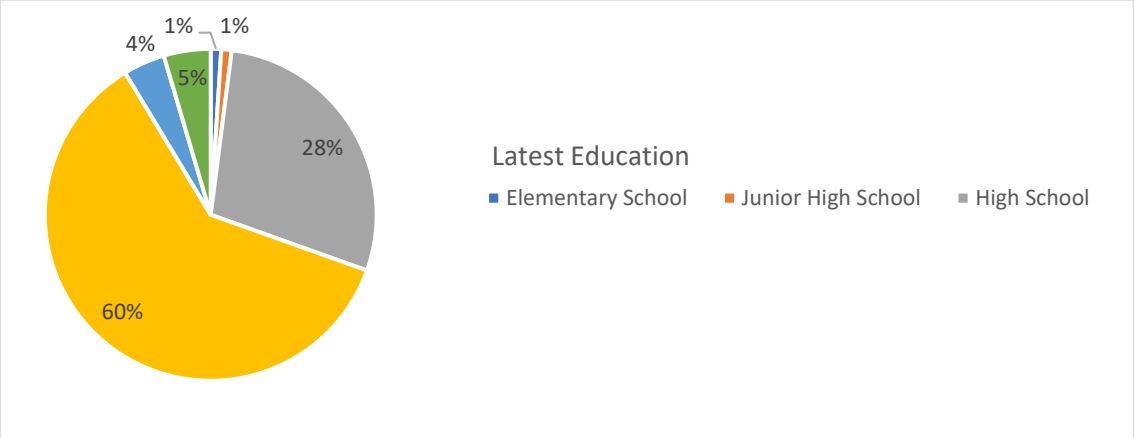

Fig. 3. Characteristics of the education level class

3.6 Characteristics of mangrove Pantai Indah Kapuk visitors/respondents based on the marital status indicator

Marital status is the status of each individual in terms of their living arrangements within the family or home, regardless of whether the person is formally married. Marital status has a considerable influence on changes in one's attitude and behavior in seeking activity preferences for others (family members). According to certain studies, married couples spend less time on vacation than single people or also have a relationship between married people and their leisure time. The results are also shown in Figure where most of the visitors who come to visit are single (61%) and only 36% are married.

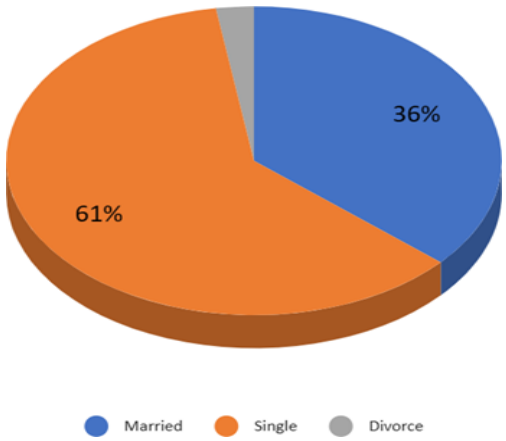

Fig. 4. Characteristic of the marital status class

3.7 Characteristics of mangrove Pantai Indah Kapuk visitors/respondents based on the willingness to pay indicator

Willingness to Pay (WTP) on the trade-off measure is the maximum amount of money that the person is willing to sacrifice to get something. From the sample data, the Willingness to pay classification is shown (table 6).

Table 6. The classification willingness to pay

Willingness to pay	Total	Percentage
< 10,000 IDR	30	19%
10,000 – 15,000 IDR	74	46%
16,000 – 20,000 IDR	39	24%
21,000 – 25,000 IDR	9	6%
> 25,000 IDR	10	6%
	162%	100%

The entrance ticket price of Mangrove beautiful beach kapuk is currently around 2,000 IDR. According to the classification of beautiful beach mangrove entrance fees, the average willingness to pay is 10,000-15,000 IDR.

4. Conclusions

Based on the analyst, the independent values do not affect the dependent value significance. based on the existing hypothesis it can be concluded that there is an effect of education level, and marital status on the willingness to pay entrance tickets to the PIK Mangrove Ecotourism Park. Referring to the coefficient value of the value of independent value still has a correlation between the dependent values that age and education level because the relationship value is negative, it means if two of these things increase it will decrease the amount of willingness to pay. If the marital status is positive, it means the marital status will increase the amount of willingness to pay.

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