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The Determinants and Valuation of Owabong Waterpark Tourist Destination

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Abstract

This research analyzes the the economic valuation of Owabong development which focuses on two objectives, namely analyzing the determinants of tourist visits to Owabong using travel cost method and multiple regression technique, and determining willingness to pay of Owabong tourists using contingent valuation method. It is quantitative research where by using incidental sampling technique the primary data were collected from 96 respondents—tourists—and completed by secondary data from relevan institutions. The developed equation model is consist of several independent variables, i.e. travel cost, travel distance, age of visitor, individual visitor income, and visitor perceptions about facilities, and then the dependent variable is tourist visits. The results are that (1) the variables that determine the number of visits to Owabong are travel cost, individual visitor income, and visitor perceptions of the facilities at Owabong; (2) willingness to pay (WTP) for Owabong visitors on weekdays can be a recommendation for entrance ticket increase of 20 percent, that is IDR30,000, while on weekends visitors don't want an increase in entrance ticket, which is still IDR35,000.

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INTRODUCTION

Indonesia is a country with the beauty and diversity of natural resources and cultural heritages. These enormous natural potentials have brought Indonesia to be famous country. Moreover, foreign tourists have been interested in visiting Indonesia and then providing benefits for this country (Indonesia Investment, 2016). Indonesia's tourism potential is able to compete with other countries in the tourism industry. The strength of Indonesian tourism lies in three elements, namely 60 percent natural tourism, 35 percent heritage tourism, and 5 percent man-made tourism such as culinary tours, shopping tours, and other artificial tourism (Ministry of Tourism, 2017). According to Travel & Tourism Competitiveness Index (TTCI) Report that Indonesia has achieved the index Indonesia's tourism competitiveness to rank 40 in 2019, up two places from rank 42 in 2017, and up eight places from rank 50 in 2015 (World Economic Forum, 2019). Those tourism strengths can make a big contribution to the development of the national economy.

Ecotourism is a tourism based on nature by including aspects of education and interpretation of the natural environment and culture of the community with ecological sustainability management (Mondino et al., 2018; Sondak and Chung, 2015; Wattage, 2011; Nugroho, 2011). Ecotourism is also a concept of sustainable tourism development that aims to support environmental conservation efforts and to increase public participation in management and provide economic benefits to local communities (Sondak et al., 2019; Malik et al., 2019; Kusmana, 2014). Ecotourism can be the main alternative for the community on recreational needs, because recreation has become a human need to refresh the mind and condition of the body after undergoing the routine of daily life. Ecotourism has become a trend and demand thus creating opportunities to attract more tourists (Lisma et al., 2016). Ecotourism area provides tourist attractions such as mangrove tracking, learning and rehabilitation, fishing, bird watching, spots for pre-wedding and selfie photoshoot, culinary, and gazebo with an ocean view for relaxation of tourists (Malik et al., 2019; Hakim, 2017).

The development of tourism sector, besides being able to increase the number of tourist visits, is also able to increase the Local Own-Source Revenue (PAD). With regard to PAD from the tourism sector, regions can explore the potential of natural resources in the form of tourist objects. The following shows the data on the number of tourist attractions in Central Java Province.

Table 1. The Number of Tourists in Central Java Province, 2013-2020

Year	Tourists			
	Foreign (person)	%	Domestic (person)	%
2013	388,143	-	29,430,609	-
2014	419,584	8.10	29,852,095	1.43
2015	421,191	0.38	33,030,843	10.65
2016	578,924	37.45	36,899,776	11.71
2017	782,107	35.10	40,118,470	8.72
2018	677,168	-13.42	49,943,607	24.49
2019	691,699	2.15	57,900,863	15.93
2020	78,290	-88.68	22,629,085	-60.92

Source: Regional Youth, Sport, and Tourism Service of Central Java Province, 2021

The number of tourist visits, both foreign and domestic, in Central Java Province from 2013 to 2019 showed a relatively positive increase, although fluctuated, except for a slight decline in 2017-2018 in foreign visit. The above conditions should not be equated with 2020 due to the covid-19 pandemic where there was a sharp decline in all visits. The relatively positive increase of people to travel on tours, before pandemic, has a positive impact on the development of tourism in areas (regencies/cities) in Central Java Province. One of them is in Purbalingga Regency, which is ranked fourth in Central Java Province in terms of tourism revenue, where there is a new famous tourist attraction, namely the Owabong Water Tourism Object (Owabong) located in Bojongsari District. In 2006, Purbalingga's mainstay tourist attraction paid Rp1.5 billion. A year later it increased to Rp1.6 billion and jumped to Rp3.25 billion (Dinporapar Purbalingga, 2019).

Furthermore, the Dinporapar of Purbalingga Regency (2019) reports that the contribution of income from Owabong tourism objects to the total income of all tourist attractions in Purbalingga Regency from 2006 to 2018 reached 80 – 90%, and the contribution of tourism sector revenue to Local Own-Source Revenue (PAD) Purbalingga Regency is around 35 – 40%.

A large number of local workers are employed in Owabong and the number is increasing over the years. The increase in the number of workers is in line with the increase in facilities and rides offered, including tsunami-free beaches, spilled buckets, flying fox, karts, 4D theater, jet couster, rafting advernture, etc. Every year Owabong targets to open 2 new rides (Dinporapar Kabupaten Purbalingga, 2019). In addition, economically, Owabong's revenue contribution to the total revenues of all tourist objects in Purbalingga Regency from 2006 to 2018 reached 80-90% and its contribution to Local Own-Source Revenue (PAD) was around 35-40% (Dinporapar Purbalingga, 2019).

Based on this description, it is necessary to have an in-depth study of the economic value that Owabong tourists can enjoy. Furthermore, based on this value, it can be analyzed the willingness to pay (WTP) which then can be estimated the relevant and reasonable entrance ticket based on the WTP value.

RESEARCH METHODS

Understanding the value of various environmental services is very important in making decisions related to resource management that is profitable from an economic perspective and environmentally sustainable. However, the economic value of natural resources that offer natural beauty or landscapes is generally non-market or non-tradable (Jala & Nandagiri, 2015; Godari and Ghiyasi, 2014). To estimate the economic value of environmental services, certain valuation techniques must be used.

Jala & Nandagiri (2015) stated that one of the economic valuation techniques that can be used to assess environmental services in the form of natural beauty should be the Travel Cost Method (TCM). The basic premise of the travel cost method states that the time and travel costs incurred by individuals to visit a location represent the price for accessing that place (Jala & Nandagiri, 2015; Pascoe et al., 2014). The travel cost method can use two approaches, namely travel costs based on regional zones (Zonal Travel Cost Method) and individual travel costs (Individual Travel Cost Method).

In the last two decades, the Individual Travel Cost Method (ITCM) has been more widely used considering the advances in information technology and the advantages of being able to capture the socio-economic characteristics of visitors such as age, income, and education. This information is difficult to obtain when using the zone-based travel cost method (Desriani, 2017; Dharmawan et al., 2016)

This research is part of an economic study of natural resources and the environment that analyzes the economic value of developing a project or activity that involves natural resources (Suparmoko and Ratnaningsih, 2016; Jala & Nandagiri, 2015; Pascoe et al., 2014). This study use willingness to pay (WTP) approach, i.e. how much the economic value is willing to be paid by those who receive or take advantage of an economic activity. In other words, the calculation of WTP looks at how far the ability of individuals or communities in the aggregate to pay in order to improve environmental conditions to conform to the desired standard, which is the potential use value of natural resources and environmental services (Zulpikar et al., 2017; Suparmoko and Ratnaningsih, 2016; Pascoe et al., 2014).

Haider et al. (2017) analyzed the value of recreation and willingness to pay (WTP) to develop recreational facilities from four tourist attractions in Bangladesh, namely the Shat Gumbuj Mosque, Mozaffar Park, Niribili tourist attraction and Chandramahal Eco-park. The methods used are the travel cost method (TCM) and the contingency value method (CVM). The variables used are trip duration, travel costs, travel time, mileage, mode of transportation, frequency of visits, entrance fees and other travel-related aspects. The result shows that the

variables of travel costs, travel distance, age have a statistically negative effect on the probability of visits.

A similar research was previously conducted by Bhatt and Bhat (2016) which used the travel cost method (TCM). This method is used to estimate the recreational use value of Dachigam National Park as well as its importance for park acquisition development and management policies. The variables analyzed included the number of visits (dependent variable), travel costs, round trip distances, individual monthly income, education, age, number of members, and gender (independent variables). The result shows that the variable travel costs and travel distance have a negative effect, while the individual income and education variables have a positive effect on recreational demand. The gender variable is also statistically significant with a positive coefficient, meaning that it indicates that male tourists are more enthusiastic about enjoying recreational sites than female tourists. This finding supported previous research conducted by Cheung & Jim (2014) that concluded higher education and income, and also the younger tourists were willing to pay more to enjoy conservation area views.

Likewise, research conducted by El-Bekkay et al. (2013) who examined the estimated value of recreation, namely the Massa River Estuary site (EOM, with the contingency value method (CVM) and the travel cost method (TCM). This study used the dependent variable on the number of annual visits as well as the independent variables in the form of age, distance from the site, time at the recreation site, number of children, total travel expenses, monthly income, and willingness to pay (WTP) The result is that the consumer surplus per person per visit is estimated at US $65.36 and willingness to pay per visitor is around US $6.20. According to economic valuation that the development of the site must consider the opportunities and potentials that exist as a promising recreational site.

Terry, Mukti, and Sunaryati (2020) also concluded that several variables affecting willingness to pay (WTP) were education level and age of tourists, environmental hygiene, and tourists' convenience and satisfaction. They suggested the important things should be how to increase tourist attractions such us good facilities, easy access, and fulfilled satisfaction. Based on the TCM, CVM, and findings from previous studies, several hypotheses can be developed from this research are written below:

H_1: travel cost has negative effect on tourist visits, it means that the higher the travel cost, the fewer the tourist visits. The travel cost becomes obstacle to tourits/visitors if it shows the large amount of expenses. How many times the visitors change vehicles to tourist attraction is one example.

H_2: age of visitor has negative effect on tourist visits, it means that younger visitors are more attractive to travel and visit tourist destinations. They are usually chalenged to create new stories or journeys through travelling to various places. Those, the younger the visitors the more the tourist visits.

H_3: travel distance has negative effect on tourist visits, the distance from home to tourist sites is also one of visitor reasons to travel or not. The farther the travel distance, the fewer the tourist visits. Moreover, if there are more damaged roads to the sites, it can delay the visitor from going there.

H_4: individual visitor income has positive effect on tourist visits, one of important factors that someone can travel many times and many places are his/her income. If someone has more money than others then he usually will spend it on more leasure times, such as travelling, hiking, fishing, etc.

H_5: visitor perseption about facilities has positive effect on tourist visits, the image that is built about the tourist attraction of most visitors is an important factor in how to maintain and develop this site. Usually, people will assess some tourist sites about the cleanliness, savety, availability of facilities (playground, gazebo, toilet, swimming pool, mosque, food court, etc.), both quantity and also quality. If a visitor perceives good image about a tourist sited then

he will plan to come back there one day, vise versa.

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This study uses primary data from Owabong tourists with incidental sampling as the sampling technique where each tourist encountered can be used as a sample/respondent as long as the criteria are suitable as a data source (Gujarati & Porter, 2009). The number of samples required can be determined using the Lemeshow formula (Lemeshow & David, 1997), namely:

$$n = \frac{p(1-p)(\frac{Z\alpha}{2})^2}{D^2} \quad \text{..... (1)}$$

$$n = \frac{0{,}5(1-0{,}5)(1{,}96^2)}{0{,}1^2}$$

n = 96 persons.

Where, n is sample size; Z is standard value of distribution at α=0.05, i.e, 1.96; p is outcome prevalence, because data have not been obtained, the maximum estimate is used, i.e, 0.5; D is accuracy level of 0.1.

The primary data obtained were then analyzed using the travel cost method/TCM and the contingency value method (CVM). First, the travel cost method/TCM is used to analyze the determinants of tourist visits to Owabong (Mojiol et al., 2016; Hakim et al., 2011). The equation models are:

$$LnY_i = \beta_0 + \beta_1 LnX_{1i} + \beta_2 LnX_{2i} + \beta_3 LnX_{3i} + \beta_4 LnX_{4i} + \beta_5 LnX_{5i} + e \quad \text{..... (2)}$$

Where, Y_i is number of tourist/visitor visit (IDR); X_1 is travel cost (IDR); X_2 is age visitor (year); X_3 is travel distance (km); X_4 is individual visitor income (IDR); X_5 is visitor perceptions about facilities and infrastructure; i is cross section; e is error terms; $\beta_{1,2...5}$ is coefficient; and β_0 is constant.

The equation model is analyzed by multiple linear regression to determine the variables affecting the visitor visit. Before being analyzed and interpreted, the equation model is first tested with classical assumptions, namely multicollinearity, heteroscedasticity, and autocorrelation to ensure the model is fit, then tested with statistical measures, namely R2 test, F test, and t test to be interpreted into economic analysis (Gujarati, 2009).

Furthermore, the contingency value method (CVM) is used to analyze the willingness to pay of visitors for the benefits of enjoying a tourist attraction, in relation to improving the environmental conditions at the desired standard. The WTP value of each visitor will vary based on the preferences regarding the value of using and managing natural resources.

Several approaches in calculating WTP for increasing or decreasing in environmental conditions are (1) determining the level of people's willingness to pay in order to reduce negative impacts on the environment or to obtain a better environmental quality; (2) calculating the costs that individuals are willing to pay to reduce the negative impact on the environment due to a development activity; (3) calculating the reduction or increase in the price of a good due to decreasing or increasing environmental quality.

RESULTS AND DISCUSSION

First explanation is about regression analysis results. Regression analysis is used to investigate the determinant variables of willingness to pay. Based on the classical assumption test, the results show that the Owabong tourism visit demand function equation model has passed the multicollinearity, autocorrelation, and heteroscedasticity tests. The results is presented in Table 2.

Table 2. Summary of Classical Assumption Test

1. Multicollinierity		
Independent Variables	VIF	Conclusion (passed: VIF < 10)
(X_{1i}) travel cost	1.691	passed
(X_{2i}) visitor's age	1.696	passed
(X_{3i}) travel distance	1.243	passed
(X_{4i}) visitor income	1.227	passed
(X_{5i}) visitor perseption	1.059	passed
2. Heteroscedasticity		
Independent Variables	Sign.	Conclusion (passed: sign. > 0.05)
(X_{1i}) travel cost	0.082	passed
(X_{2i}) visitor's age	0.104	passed
(X_{3i}) travel distance	0.585	passed
(X_{4i}) visitor income	0.127	passed
(X_{5i}) visitor perseption	0.382	passed
3. Autocorrelation		
Durbin-Watson (DW)	dU / 4-dU	Conclusion (passed: dU<DW<4-dU)
1.903	1.780 / 2.220	passed

Source: Primary data (processed)

After passing the classical assumption test, the equation model is ready for statistical tests, namely R2, F, and t. Complete, the results can be seen in Table 3 below:

Table 3. Results of Regression: Statistical Test

Independent Variables	Coeff.	t_{stat}	t_{table}	Sign.
(X_{1i}) travel cost	-0.162	-2.855	-1.661	0.007
(X_{2i}) age of visitor	-0.020	-0.122	-1.661	0.891
(X_{3i}) travel distance	-0.072	-0.779	-1.661	0.421
(X_{4i}) visitor income	0.212	2.671	1.661	0.004
(X_{5i}) visitor perseption	0.201	2.372	1.661	0.018
Konstanta	= 1.921			
R^2	= 0.244			
Adj. R^2	= 0.213			
F_{hitung}	= 5,915			
F_{tabel}	= 2,290			

Source: Primary data (processed)

Based on the results of the regression analysis in Table 3, the equation model can be written, namely:

$$\hat{}lnY_i = 1.921 - 0.162lnX_{1i} - 0.020lnX_{2i} - 0.072lnX_{3i} + 0.212lnX_{4i} + 0.201lnX_{5i} \quad (3)$$

From the results of this analysis, several things can be explained as follows. The value of Adj.R^2 is 0.213, which means that the variation in the dependent variable (number of visits to Owabong) can be explained by variations in the independent variables (travel costs, visitor age, distance traveled, individual visitor income, and visitor perceptions of facilities in Owabong) of 21.3 percent, the remaining 78.7 percent is explained by other variables outside the model. The small Adj.R2 value in terms of cross section data is not a problem because the characteristics of this data do vary from one individual to another so that with this small value it is still a good model (Wooldridge, 2016).

The value of F-statistic of 5,915 is greater than F-table (2,290) so that it passes the F test. This means that all independent variables in the model have a statistically significant effect on the number of visits to Owabong.

The regression coefficient for the X1i variable is -0.162 shows that the cost of traveling for visitors to Owabong has a statistically significant negative effect (sign. 0.007<0.05) on the number of visits to Owabong. In more detail, if travel costs increase by 1 percent, it will decrease the number of visits by 0.162 percent, assuming other variables are constant.

The coefficient of the X4i variable is 0.212, indicating that the individual income of visitors to Owabong has a statistically significant (sign. 0.04<0.05) positive effect on the number of visits to Owabong. In more detail, if the individual visitor's income increases by 1 percent, it will also increase the number of visits by 0.212 percent, assuming other variables are constant.

The regression coefficient of the X5i variable is 0.201, indicating that visitors' perceptions of all existing facilities in Owabong have a statistically significant (sign. 0.018<0.05) positive effect on the number of visits to Owabong. In more detail, if visitors' perceptions of Owabong facilities tend to be satisfied, it will also increase the number of visits by 0.201 percent, assuming other variables remain.

Thus, there are two independent variables that do not affect the number of visits to Owabong, namely the age of the visitors and the distance traveled. With these results, it can be concluded that regardless of age, it does not discourage his interest in visiting Owabong. This finding is different from the findings of Haider et al. (2017) which states that there is a negative influence between the age of tourists and the probability of visits, that is, the older the tourists, the lower the probability of their visits. This difference in findings can be explained based on direct observations at the Owabong tourist site that there are mixed ages of children, adolescents, adults, and even the elderly. It can be understood that Owabong is not specifically for certain age groups, but for all ages, so that young and old visitors can enjoy the facilities and rides there.

In addition, the travel distance also does not prevent visitors from traveling to Owabong. This finding is also different from the findings of Bhat and Batt (2016) and Haider et al. (2017) who concluded that there was a negative influence between travel distance on requests for tourist visits. The difference in these findings can be explained that according to direct observations at the Owabong tourist site, many visitors come with bus groups or families from outside Purbalingga Regency or from outside the Barlingmascakeb area. This was possible because of the success in promoting Owabong outside the region which was able to attract people to visit Owabong.

Second explanation is about visitor willingness to pay. This analysis will measure how much the visitors are willing to pay a certain amount (rupiah) to be used for maintenance, repair and development, both in quality and quantity, in relation to the various facilities and rides available in Owabong. The method used is through the Contingency Valuation approach, namely the technique of calculating willingness to pay (WTP).

It was done by asking visitors the bidding value obtained from increasing entrance tickets by 20 percent on weekdays and increasing entrance tickets by 15 percent on weekends, but with information that some facilities will be improved and plus some new rides. The admission ticket on weekdays (Monday-Friday) is Rp25,000 and on weekends (Saturday-Sunday) it is Rp35,000, so the bid value 1, which is during weekdays, is Rp30,000, while the bid value is 2, which is when weekend, is Rp40,000 (rounding). The visitors were asked to express the perception through the selection criteria: strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1). The results of the study are shown in Table 4 and Table 5.

Table 4. Willingness to Pay (WTP) of Owabong Visitors: Bid Value 1

No	Visitor Income	Choice					
		5	4	3	2	1	Total
1	< 1.000.000	5	6	3	2	2	18
2	1.000.000 - 2.000.000	8	10	4	5	5	32
3	2.000.000 - 3.000.000	8	9	4	3	1	25
4	3.000.000 - 4.000.000	4	6	3	2	1	16
5	> 4.000.000	2	2	1	0	0	5
	Total	27	33	15	12	9	**96**
	%	28	34	16	13	9	100

Source: Primary data (processed)

Based on Table 4 it can be observed that when visitors are offered a ticket increase of 20 percent to Rp30,000 during weekdays with information that facilities will be improved and added with rides, 28 percent strongly agree, 34 percent agree, 16 percent are neutral, 13 percent disagree, and 9 percent strongly disagree. In other words, the visitors who agreed (strongly agree and agree) were 63 percent, while those who disagreed (disagree and strongly disagree) were 22 percent, and only 16 percent were neutral. Therefore, based on these results, it can be used as a recommendation that the entrance ticket can be proposed to be increased by 20 percent, from Rp25,000 to Rp30,000 for weekdays.

This finding supports the previous research by Pascoe et al. (2014) that the costs of managing the tourist attraction or reserves tend to fall mostly with the domestic authorities, then, consequently, there is a strong suggestion to

increase the contributions of visitors in particular for the management of this reserve. In other words, there is a substantially greater proportion of the benefits accrue to visitors rather than the costs.

Furthermore, for bid value 2, the entry ticket at the weekend is increased by 15 percent, from Rp35,000 to Rp40,000 (rounding off). The research results are presented in Table 5 below.

Table 5. Willingness to Pay (WTP) of Owabong Visitors: Bid Value 2

No	Visitor Income	Choice					
		5	4	3	2	1	Total
1	< 1.000.000	0	0	3	7	8	18
2	1.000.000 - 2.000.000	0	0	2	13	17	32
3	2.000.000 - 3.000.000	0	1	3	10	11	25
4	3.000.000 - 4.000.000	0	0	2	9	5	16
5	> 4.000.000	0	0	0	3	2	5
	Total	27	0	1	10	42	43
	%	28	0	1	10	44	45

Source: Primary data (processed)

Based on Table 5, it can be observed that when visitors are offered a ticket increase of 15 percent to Rp40,000 at the weekend with the information that facilities will be improved and added with rides, 43 percent strongly disagree, 42 percent disagree, 10 percent are neutral, 1 percent agree, and 0 percent strongly disagree. In other words, the visitors who expressed agreement (strongly agreed and agreed) were only 1 percent while those who disagreed (disagreed and strongly disagreed) reached 89 percent, and only 10 percent were neutral. Therefore, based on these results, it can be concluded that the visitors do not want an increase in entrance tickets at the weekend. The visitors assume that the current entrance ticket (on weekends) is in accordance with the visitors' abilities and perceptions.

Thus, based on Table 4 and Table 5, it can be concluded that the WTP of visitors during weekdays can be applied to the increase in the price of admission tickets, from Rp25,000 to Rp30,000. However, during weekends, visitors do not want an increase in entrance tickets because the value/price is in accordance with the visitors' abilities and perceptions in terms of willingness to pay.

CONCLUSION

This study analyzes the economic valuation of Owabong development which focuses on two things, namely analyzing the determinants of tourist visits to Owabong using the travel cost method and determining the willingness to pay (WTP) of Owabong tourists. The results are that (1) the variables that determine the number of visits to Owabong are travel costs, individual visitor income, and visitor perceptions of the facilities at Owabong; (2) willingness to pay (WTP) for Owabong visitors on weekdays can be a recommendation for a ticket increase of 20%, which is Rp30,000, while on weekends visitors don't want a ticket increase, which is still Rp35,000.

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