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ANALISIS KESEDIAAN MEMBAYAR (WTP) PENGUNJUNG TERHADAP
PENGEMBANGAN WISATA ARUNG JERAM DI DAERAH ALIRAN SUNGAI
(DAS) SERAYU

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ABSTRAK
Wisata Arung Jeram Serayu merupakan wisata yang memanfaatkan potensi Daerah Aliran Sungai (DAS) Serayu dan terletak di Kabupaten Banjarnegara. Wisata Arung Jeram Serayu berpeluang untuk ditingkatkan potensinya menjadi salah satu wisata unggulan di Kabupaten Banjarnegara. Penelitian ini bertujuan untuk mengidentifikasi karakteristik sosial ekonomi wisatawan objek wisata Arung Jeram Serayu, mengestimasi tingkat kesediaan membayar (willingness to pay) untuk menentukan potensi harga maksimum yang masih bersedia dibayarkan dalam pengembangan objek wisata Arung Jeram Serayu dan menganalisis faktor yang mempengaruhi kesediaan pengunjung untuk membayar lebih beserta faktor yang mempengaruhi nilai tersebut dipilih. Penelitian ini menggunakan metode CVM dan analisis regresi logistik, dengan data primer diperoleh dari survei kepada 105 responden melalui teknik multistage sampling dan data sekunder diperoleh dari dokumen-dokumen yang berasal dari dinas, instansi atau lembaga yang terkait. Hasil penelitian ini menyatakan bahwa nilai potensi ekonomi obyek wisata Arung Jeram Serayu tergolong baik, karena dari 105 responden sebanyak 95 responden (90,5%) diantaranya bersedia membayar lebih untuk pengembangan pbyek wisata dengan skenario 1 sebesar Rp 10.000 dan skenario 2 sebesar Rp 25.000. Variabel asal daerah dan tingkat pendapatan berpengaruh terhadap kesediaan membayar, sedangkan variabel jenis kelamin, umur, status pernikahan dan tingkat pendidikan tidak mempengaruhi kesediaan membayar.

Kata kunci: Nilai Potensi Ekonomi, Kesediaan Membayar, Regresi Logistik
ANALYSIS OF WILLINGNESS TO PAY (WTP) VISITORS TO THE DEVELOPMENT OF RAFTING TOURISM IN SERAYU WATERSHED

ABSTRACT

Serayu Rafting Tourism utilizes the potential of Serayu Watershed located in Banjarnegara Regency. Serayu Rafting Tourism has the opportunity to increase its potential to become one of the leading tourism in Banjarnegara Regency. This study aims to identify the socioeconomic characteristics of tourists of Serayu Rafting attractions, estimate willingness to pay to determine the maximum potential price that is still willing to be paid in the development of Serayu Rafting attractions and analyze the factors that influence the willingness of visitors to pay the value chosen. This research uses CVM method and logistic regression analysis, with primary data obtained from survey to 105 respondents through multistage sampling technique and secondary data obtained from documents coming from relevant agencies, agencies or institutions. The results stated that the economic potential value of Rafting Serayu tourism object is quite good, because of 105 respondents as many as 95 respondents (90.5%) among them are willing to pay more for the development of tourism like this scenario 1 of Rp 10,000 and scenario 2 of Rp 25,000. Variable regional origin and income level affect willingness to pay, while variable gender, age, marital status and level of education do not affect willingness to pay.

Keywords: Economic Potential Value, Willingness to Pay, Logistic Regression

INTRODUCTION

Serayu has a very important advantage and is perfect for rafting trips. Compared to other locations that have white water rafting areas, this location has a lot of gulan keung. The amount of water in the Serayu River is very large and the route is very long, the water discharge is very even throughout the year, and the scenery around the Serayu River is very beautiful. The combination of the geographical location of Banjarnegara Regency and the potential of Serayu watershed that supports the above conditions makes serayu river as an opportunity to increase its potential and make it one of the mainstay natural attractions in Banjarnegara Regency with its white water rafting.

There are several rafting tour managers in Banjarnegara Regency, namely Serayu Adventure Indonesia, Arung Rafting Indonesia and The Pikas. This is the focus of this research, considering that rafting tours are managed by private parties in collaboration with the Ministry of Tourism. Tourism that acts as a builder for tourists. While the community can participate
as human resources that provide services and obtain participation results.

According to Fauzi (2010), economic value can be interpreted as the maximum amount a person can earn at the expense of goods and services. This concept states that one is willing to buy goods and services produced by natural resources and the environment by measuring the monetary value of goods and services. The desire to pay can also be measured in the form of increased income that makes society indifferent to external changes. In addition to measuring WTP (Willingness to Pay), economic value can also be measured by measuring WTA (Willingness to Accept) which is the minimum amount of income that people are willing to receive for environmental damage.

**RESEARCH METHODS**

The study used primary data and secondary data. Primary data is data obtained directly from the source. The study's primary data was obtained from a survey of 105 respondents through a *multi-stage sampling* technique with sampling through three stages (low season, mid season, and peak season). Primary data from 4 key persons is also obtained through the *purposive sampling* method.

In this study, the key person is as follows: 1 person from the Tourism Office, 1 Head of The Undip Architectural Engineering Program, 1 Professor of the Faculty of Civil Engineering Undip and 1 owner of The Pikas Artventure Resort who is also the Chairman of the Daily Federation of Rafting Indonesia Banjarnegara.

While secondary data is obtained from the literature and library materials and data from books, articles, journals or the internet. Secondary data can also be obtained from official documents, or related agencies, namely data from the Tourism Office, Coordinator of Serayu River Rafting Management and Population and Civil Records Office of Banjarnegara Regency.

The analytical methods used in this study are CVM analysis and logistic regression analysis. According to Susilowati (2018), *Contingent Valuation Method* (CVM) is a technical survey method that asks the public about the value of the price they provide for non-market goods. (Like environmental goods). The method used in CVM is basically to ask the public about the willingness to pay (WTP) or the maximum value of willingness to pay.

According to Halkos and Matsiori (2017), the implementation of the CVM method is divided into five stages, namely (1) making the market hypothetical, (2) determining the value of the offer, (3) calculating the average WTP value of
visitors, (4) aggregateing data, (5) determining the pattern of visitor behavior.

At the beginning of the CVM method, previously researchers had to make market assumptions about the resources to be evaluated in order to obtain auction value obtained through investigation. The purpose of this survey is to get a maximum willingness to pay (WTP) value in a project (such as the environment) to calculate the average WTP or WTA. After conducting the survey, the next step is to calculate the average WTP value of each person. The average WTP value is calculated based on the auction price (bid) obtained in the second stage.

Percount is usually based on averages and medians to estimate the auction curve (the twaran curve). Auction curves are obtained for example with WTA as bound variables that have some free variables. This process involves the transformation of the overall sample average data. One conversion method is to multiply the sample mean by the population size (N).

This study used eight variables namely (1) Willingness to Pay (WTP), (2) WTP Value, (3) Gender, (4) Age, (5) Regional Origin, (6) Marriage Status, (7) Old Education, (8) Income Level.

The willingness variable to pay is 1 for the willing and 0 for the unprepared. WTP variable values include (1) Rp 10,000 and (2) Rp 25,000. The sex variable has a value of 1 for men and a value of 0 for women. The age variable is the age of the respondent at the time of the study. The variable of the area of origin is the visitor's area of origin. Variabel marital status is 1 for married and 0 for unmarried. The variable of educational time is the level of education of visitors from elementary school to college. While the income level variable is the respondent's income either from the main job or side.

In this study, logistic regression analysis was used to determine the influence of independent variables on independent variables as research conducted by Dojo Suprapto et al, 2015; Fang Han et al, 2011; Thalany Kamri, 2013; Zhang Tao, 2012; Ruth Roselin Erniwati Nainggolan, 2019; Mei Kuang Siew et al, 2015; and Indah Susilowati (2019).

The logistic regression equations in this study are as follows:

\[ L_i = \beta_0 + \beta_1 J K_i + \beta_2 U M U R_i + \beta_3 A D_i + \beta_4 S P_i + \beta_5 L P_i + \beta_6 P E N D_i + e_i \]

\[ L_i = \text{Worth 1 to be willing to pay and 0 for not being ready.} \]

\[ \beta_0 = \text{Intersep} \]
\[ \beta_1, \ldots, \beta_6 = \text{Regression coefficient} \]

\[ JK = \text{Gender. Worth 1 for men, 0 for women.} \]

\[ \text{AGE} = \text{Age (Years)} \]

\[ \text{AD} = \text{Regional Origin} \]

\[ \text{SP} = \text{Marital Status. It's worth 1 for being married and 0 isn't.} \]

\[ \text{LP} = \text{Length of Education (Year)} \]

\[ \text{PEND} = \text{Income (Rupiah)} \]

\[ i = \text{Respondent } i (i = 1, 2, \ldots, n) \]

\[ e = \text{Error or Error} \]

**RESULTS AND DISCUSSIONS**

**Socio-Economic Characteristics of Tourists**

**The Pikas Artventure**

The number of tourists who participated in this study was 105 people. Respondents' socioeconomic characteristics in the study were very diverse, as seen from the variables of gender, region of origin, age, marital status, education level and income level of respondents. Respondents' socioeconomic characteristics are shown in Table 1 of the Appendix.

**Hypothetical Market Design Using CVM**

The first step taken in building the market is to conduct an indepth interview with a key person in the form of the government and tourist attraction manager to get a visualization design of the development of tourist attractions. Furthermore, it provides information to all respondents about the circumstances around The Pikas Artventure Resort in the form of incomplete facilities and some places that have not been well maintained.

Respondents were then given information related to the conditions to be planned in accordance with the results of the **indepth interview** with the Government and The Pikas Artventure Manager such as storage rooms, paving roads, floor planks, and gazebos that will be included in scenario 1 with a price of Rp10,000. Respondents will be asked questions about the willingness to pay Rp 10,000 by answering yes or no, if the respondent is willing to pay then the researcher will ask questions about the willingness to pay for scenario 2 in the form of the addition of documentation service facilities during rafting activities, pool makingbiles pada finnish point, repair of bathroom facilities with **water heater** and towels, as well as photo spots with a price of Rp 25,000. If the respondent is willing to pay, then scenario 2 will be selected to be the maximum value of tourist respondents, but if not then scenario 1 will be selected as the value of visitor's providership of Rp 10,000.

**Analysis Nilai Willingness to Pay**

Analisis WTP is done to find out the value of willingness to pay or the maximum value that
someone is willing to spend for the development of The Pikas Artventure Resort. The number of respondents in this study was 105 respondents where 90.5% were willing to pay for the construction of The Pikas Artventure Resort Attraction, while the remaining 9.5% were not willing to pay. The value of WTP offered in this study is divided into two, namely scenario 1 amounting to Rp 10,000 and scenario 2 of Rp 25,000. The value of the offer is obtained based on key person interviews related to the development of The Pikas Artventure Resort.

The results of the analysis of the average WTP value of travelers are obtained from the ratio of the total value of WTP approved by respondents to the total number of respondents who are willing to pay. The following table shows the distribution of respondents' WTP values:

<table>
<thead>
<tr>
<th>No.</th>
<th>WTP (Rp)</th>
<th>Number of respondents</th>
<th>Persentase (Rp)</th>
<th>WTP x Number of Respondents (Rp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rp 10.000</td>
<td>50</td>
<td>52,6%</td>
<td>500.000</td>
</tr>
<tr>
<td>B</td>
<td>Rp 25.000</td>
<td>45</td>
<td>47,4%</td>
<td>1.125.000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>95</td>
<td>100%</td>
<td>1.625.000</td>
</tr>
</tbody>
</table>

Source: Olah Data, 2020

To find the average WTP value in this study, the formula is used as below:

\[ EWTP = \frac{\sum_{i=1}^{n} Wi}{n} \]

Information:
EWTP = alleged average WTP
Wi = 10th WTP value
n = number of respondents
i = ith respondent willing to pay (i=1,2,3...etc.)

Obtained the following results:
\[ EWTP = \frac{1625000}{95} \]
\[ = 17.105,26 \]

Based on the calculations above can be obtained the average WTP value of respondents Rp 17,105.26, the nominal figure can be rounded to Rp 17,000.00. In determining the amount of funds for the development of Serayu rafting tourism collected from tourists through travel packages, the average WTP value of respondents can be used as a consideration. However, the additional cost has not been applied to visitors.

The total value of WTP (TWTP) respondents to the development of Rafting Attractions Serayu Banjarnegara Regency is calculated by multiplying the average value of WTP offers by
relative frequency \((ni / N)\) then multiplied by the population of each class. The results of the multiplication are summed so that the respondent's WTP value is obtained. The results of these calculations can be seen in Table 3:

<table>
<thead>
<tr>
<th>WTP Average (a)</th>
<th>Number of Research Population (b)</th>
<th>Total WTP per Year ((a \times b))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rp 17,000</td>
<td>10,989</td>
<td>Rp 186,813,000</td>
</tr>
</tbody>
</table>

Source: Olah Data, 2020

Based on the results of calculations in the table, it can be concluded that the total value of tourist WTP during the development of rafting attraction Serayu Banjarnegara Regency is Rp 186,813,000 per year. The total value of the WTP will be used as much as possible to maintain and develop Serayu rafting attractions, as well as improve the quality of the environment and supporting facilities for Serayu rafting attractions.

**Logistics Analysis of Willingness to Pay**

The analysis of logistic regression in this study was processed using SPSS 24.0, where this analysis was conducted to find out which variables influenced respondents' willingness to pay. The results of the logistic regression test are shown in Table 4 below:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Coefficient</th>
<th>Itselt.</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.305</td>
<td>0.205</td>
<td>0.527</td>
</tr>
<tr>
<td>Age</td>
<td>0.710</td>
<td>0.724</td>
<td>0.653</td>
</tr>
<tr>
<td>Regional Origin</td>
<td>0.622</td>
<td>0.032</td>
<td>0.400</td>
</tr>
<tr>
<td>Marital Status</td>
<td>0.557</td>
<td>0.166</td>
<td>0.318</td>
</tr>
<tr>
<td>Level of Education</td>
<td>0.097</td>
<td>0.142</td>
<td>1.547</td>
</tr>
<tr>
<td>Income Level</td>
<td>0.046</td>
<td>0.022</td>
<td>1.623</td>
</tr>
<tr>
<td>Constant</td>
<td>0.069</td>
<td>0.240</td>
<td>54.805</td>
</tr>
<tr>
<td>Omnibus test</td>
<td>0.046</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox and Sneel R Square</td>
<td>0.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R Square</td>
<td>0.168</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hosmer and Lameshow test</td>
<td>0.537</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Processed data, 2020
Based on table 4 above, the results of data analysis using logistic regression showed a sig value in the omnibus test of 0.046. The value obtained shows a value that is smaller than the real level used 5% which is 0.046 < 0.050. This means variable bebas (independen) yang digunakan secara bersama-sama berpengaruh terhadap kesediaan pengunjung dalam membayar. Nilai Cox and Sneel R Square dan Nagelkerke R Square masing-masing They are 0.111 and 0.168. Nagelkerke R Square is greater than Cox and Sneel R Square's value of 0.168, suggesting that 16.8% of independent variables can explain their effect on willingness to pay, while the remaining 83.2% is influenced by other variables.

The Hosmer and Lameshow test scores showed a value of 0.537, greater than the significance value of 10% (0.537 > 0.100). This suggests that the hypotheses used in this study are acceptable and testable. To see an independent variable that has a significant influence on the dependent variable can be seen from the real sig values used in this study are 5% and 10%.

The sex variable has a Sig value. 0.205 indicates that this variable has no significant effect on the real level of 5%. This means that men and women have the same opportunity in willingness to pay more for Wisa ta The Pikas Artventure Objectickets.

These results are in line with research by Djoko Suprapto et al (2015), Thalany Kamri (2013) and Fang Han (2011) which showed that Gender does not affect the willingness to pay visitors.

The age variable has a Sig value. 0.724 which indicates that this variable has no significant effect on the real level of 5%. That is, whatever the age of visitors To Pikas Artventure Resort has the same opportunity. Because not only young people are willing to pay more or are not willing to pay more, there are also respondents who have an older age willing to pay more and not willing to pay more for the development of The Pikas Artventure Resort Attraction. This shows that if the development scenario offered is felt in accordance with the needs of respondents, then respondents are willing to pay more.

These results are in line with research by Djoko Suprapto et al. (2015), Fang Han (2011), Zhang Tao (2012) and Thalany Kamri (2013) which showed that age It does not affect the willingness to pay visitors.

The region origin variable has a Sig value. 0.032 indicates that this variable has a
significant effect on the real level of 5%. This means that the origin of the visitor area affects the willingness to pay in the development of The Pikas Artventure Resort Attraction.

These results are in line with Thalany Kamri (2013) and Fang Han (2011) research that showed that the regional origin of visitors influences willingness to pay.

The marriage status variable has a Sig value of 0.166 indicating that this variable has no significant effect on the real level of 5%. This means that respondents who have married or unmarried marital status have the same opportunity in terms of willingness to pay more.

These results are in line with research by Djoko Suprapto et al (2015) and Thalany Kamri (2013) which showed that marital status does not affect willingness to pay.

The marriage status variable has a Sig value of 0.142 which indicates that this variable has no significant effect on the real level of 5%. This means that higher education even makes respondents less likely to be willing to pay.

From the results of the study, what makes the level of education has no effect is because there are respondents with higher education who do not want the development of tourist attractions.

These results are in line with the research of Djoko Suprapto et al (2015), Fang Han (2011), Thalany Kamri (2013), Mei Kuang Siew (2015) and Indah Susilowati (2019) which showed that the level of education does not affect the willingness to pay visitors.

The income level variable has a Sig value of 0.022 which indicates that this variable has a significant effect on the real level of 5%. This means that the higher the income of respondents, the opportunity to pay more for admission in the efforts to develop The Pikas Artventure Resort Attraction is higher.

These results are in line with the research of Djoko Suprapto et al (2015), Fang Han (2011), Ruth Roselin Erniwati Nainggolan (2019), Zhang Tao (2012), Mei Kuang Siew et al (2015) and Indah Susilowati (2019) which showed that income levels affect willingness to pay.

**CONCLUSION**

Based on the results of research and discussion it can be concluded that the characteristics of respondents in this study are Serayu Rafting tourists aged 16-55 years. In general, the level of education of respondents is the completion of high school and the end of S1. The average level of tourist income is Rp 6,212,857 with the area of origin of tourists mostly coming from outside Banjarnegara. The economic
potential value of Rafting Attractions Serayu Banjarnegara Regency based on analysis from 105 respondents can be known as much as 90.5% of tourists are willing to pay for the development of The Pikas Artventure Resort Attraction, while the remaining 9.5% are not willing to pay. K esediaan pay for scenario 1 is Rp 10,000 and willingness to pay scenario 2 is Rp 25,000. Variables of regional origin and income level affected willingness to pay, while variables of gender, age, marital status and education level did not affect willingness to pay.

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