Research Paper

Bromo Tengger Semeru Economic Valuations During Pandemic Covid-19

Lustina Fajar Prastiwi¹, Rani Destia Wahyuningsih¹, Nasikh¹, Magistyop Purboyo Priyambodo¹, Nur Anita Yunikawati¹, Anissya¹, Fatimah Sidi²

¹Department of Economic Development, Faculty of Economics, Universitas Negeri Malang
²Department of Computer Science, Faculty of Computer Science & Information Technology Universiti Putra Malaysia

ORCID
Lustina Fajar Prastiwi: https://orcid.org/0000-0002-9443-1623

Abstract.
Bromo Tengger Semeru National Park (TNBTS) is a natural tourist attraction in the form of a row of mountains in the East Java area. Environmental management of the TNBTS area is an important thing that needs to be considered in supporting the development of post-pandemic tourism objects. This management is essential due to the interdependence between TNBTS tourism and the conservation of natural resources. The research method used is the travel cost method to be able to provide an estimate of the economic valuation value of the Bromo Tengger Semeru environment during the Covid-19 pandemic. Previously, researchers used multiple linear regression to determine the value of the coefficients of variables that affect the number of visitor visits, including travel costs, visitor income, the distance from the visitor’s domicile to Mount Bromo, the type of respondent’s occupation, the respondent’s education and the respondent’s age. The consumer surplus obtained previously was multiplied by the number of visitors for 12 months to produce an average economic value of Rp 66,623,948,879,955 for one year.

Keywords: travel cost method, valuation economics, Bromo Tengger Semeru

1. Introduction

Tourism is one of the fastest-growing potential sectors in the global economy (Mahmud, 2022). The tourism economic sector is proven to be able to increase regional income, accelerate regional development, and widen the opportunities for residents to get jobs (Todaro and Smith, 2015). The Nusantara Tourist Statistics (2018) reports that tourism has an increasing role from year to year in the national economy. This opportunity triggers an increase and development of tourism in Indonesia, both in the form of natural potential such as the Bromo Tengger Semeru National Park, and in the form of possible human resources, such as the Colorful Village in Malang City.

Bromo Tengger Semeru National Park (TNBTS) is a natural tourist attraction in the form of a row of mountains in the East Java area. TNBTS is the largest volcanic area in East
Java, with an area of 800 square kilometers with an altitude of 2,329 meters above sea level. TNBTS stretches across four regions in East Java, namely Probolinggo Regency, Malang Regency, Lumajang Regency, and Pasuruan Regency. Tourism activities in TNBTS not only support state income but also drive the surrounding community’s economy. Economic activity in TNBTS is dominated by ecotourism activities at Mount Bromo, Mount Batok, Penanjakan Sunrise View, Sea of Sand, and Bukit Teletubbies.

Throughout 2019, the number of tourists from within and outside the country to TNBTS reached 690,831 visitors with a total Non-Tax State Revenue (PNBO) of Rp22.86 billion. Unfortunately, the TNBTS Tourism Object experienced a decline from 2020 to 2021 due to the emergence of the COVID-19 pandemic. In 2020 TNBTS PNBP was only able to reach IDR 6.4 billion. Even in 2021, the PNBP of TNBTS will decline to 4.8 billion rupiahs.

![Figure 1: PNBP TNBTS 2019-2021. Source: (Kemenparekraf RI, 2020) (Jawa Pos Radar Bromo, 2022).](image)

Environmental management of the TNBTS area is an important thing that needs to be considered in supporting the development of post-pandemic tourism objects. This management is essential due to the interdependence between TNBTS tourism and the conservation of natural resources. The attractiveness of TNBTS depends on its natural beauty, so damage to natural resources can trigger a decline in tourists. This damage often occurs due to too open access to the TNBTS area, making it difficult to monitor activities that damage natural resources. Several activities that damage natural resources, including hunting for wild animals, edelweiss flowers, and indiscriminate garbage disposal, still occur (Utami, 2017).

On the other hand, a regional autonomy system regulates the economy and regional independence of TNBTS by optimizing natural resources, local economic potential, and tourism. This system aims to produce superior products so that the primary source of regional income is obtained from Regional Original Revenue (PAD). The PAD of Mount
Bromo Tourism in 2020 is 164 million, which only meets 25% of the total target of 650 million. This low PAD was mainly due to the COVID-19 pandemic, which made TNBTS temporarily closed in 2020. Arsyad (2017) reveals that economic development is not only measured by the increase in per capita income in the long term but also by improvements in social structures, institutional systems, and changes in people’s attitudes and behavior.

The development of tourist objects cannot be separated from the decision of visitors to visit these attractions based on the attractions offered. The decision to visit a tourist attraction is closely related to consumer behavior. The trend of the influence of price, location, and facilities on the decision to visit implies a need to consider aspects of consumer behavior, especially in purchasing decisions. Purchasing decisions can be interpreted as visiting decisions, so visiting decisions can be interpreted as decisions taken by a person or group of people to travel to specific tourist destinations for vacation/recreation purposes.

The tourism potential of TNBTS can have a significant influence or impact on all parties involved in it. The existence of TNBTS is considered very crucial for the local community’s economy and provides a significant contribution to PAD. Visitors’ willingness to pay is represented through travel costs incurred by visitors/consumers to enjoy Mount Bromo tourism. The calculation of the value of travel costs to determine the economic value needs to be done to know the estimated value of the existence of Mount Bromo so that it can be better cared for and preserved so that it can become an economical source in the long term. For this reason, researchers are interested in researching the economic value of Mount Bromo tourism during the Covid-19 pandemic. This study aimed to determine the value of Mount Bromo tourism during the Covid-19 Pandemic. Environmental economic assessment, especially for tourism areas, is important to do to determine the value of the existence of these tourist attractions at the Pandemic era. There will be lost environmental value when research is not carried out on these tours considering that the existence of Mount Bromo tourism is also the backbone of the community’s economy. This assessment comes from the willingness of visitors to pay or to enjoy Mount Bromo with various provided spots and facilities. With the Travel Cost and Contingent Valuation Cost methods, it can be seen the value of Mount Bromo from the costs incurred by the community to enjoy this tour. If you already know the value, it is hoped that stakeholders can maintain or improve the quality of the existence of these tourist attractions so as not to lose the economic potential and income generated from tourism sites. In line with this, as we know that the economy is the opposite of the ecology, this research can also be used to reduce the gap between economics and...
2. Literature Review

Economic valuation is a way to calculate the value of an item or service produced by environmental resources in meeting human needs. This happens because economic valuation directs the relationship between environmental preservation and economic development in a country (Hasibuan, 2014). Economic valuation plays an important role in the interests of natural resource and environmental management. If the quality of natural resources decreases, the supply of goods and services will also decrease. Consideration of economic value and environmental management makes economic valuation a prerequisite in managing tourist attractions. An important goal with economic valuation is to encourage decision making in accordance with economic efficiency and other benefits that may be obtained (Kurnia Fitri, 2017).

According to Hufschmidt et al. (1987) in Al-Khoiriah (2017), the environmental costs of natural resources and the environment are divided into two including:

1. Market-oriented approach
   a. Benefits are assessed from the actual prices of goods and services in the market
   b. Cost is assessed from the actual market price of environmental protection
   c. Using the substitute market method
2. Survey-oriented approach
   a. Asking questions about willingness to pay

2.1. Travel cost method

*Travel cost* is the number of costs that need to be incurred by someone to make a tourism visit to a place. *The travel cost method* shows one of the non-market valuation techniques for estimating the value of recreation. *The travel cost method* is calculated by collecting information about the amount of expenditure made by tourists and estimating the cost benefits of changing the quality of the tourist’s environment. *The travel cost method* calculates travel costs and time, entrance ticket prices, length of stay, to expenses while at the location (Haban et al., 2019). According to Saptutyningsih & Ningrum (2017), several socio-economic variables affect the number of tourists indirectly, including:
1. The amount of travel time required to visit tourist attractions. The longer it takes, the lower the visit rate

2. Age which affects the amount of free time and activities to carry out tourism activities

3. Income that indirectly influences tourist visit decisions

There are two travel cost methods: the Individual Travel Cost Method (ITCM) and the Zona Travel Cost Method (ZTCM). ITCM focuses on individual visits over a while due to factors that affect a particular person. ZTCM pays more attention to the factors that affect a group visit (Gravitiani, 2010).

2.2. The Value of Natural Resources and the Environment

Value is a human perception of the meaning of an object for a particular individual at a specific place and time (Nurfatriani, 2006). Humans’ difference in values about the value of natural resources and the environment depends on people’s perceptions of the place and time when they start the assessment. Natural resources and the environment tend to have a positive value if humans can maximize their existence to meet their needs, maximize satisfaction and provide surplus value. Meanwhile, if natural resources and the environment do not provide a positive surplus, then humans tend to assess the contribution of the environment as negative.

According to Solikhah (2016), economic value is the measurement of the maximum number of people who want to sacrifice goods and services to obtain other goods and services. This value is commonly referred to as the willingness to pay to enjoy natural resources and the environment.

2.3. Surplus Consumer

Consumer surplus is defined as the distance of satisfaction felt by consumers when consuming a product with total utility taking into account the sacrifices required to get the product. Consumer surplus arises as a result of an excess of goods or services being paid for. This excess is related to the law of diminishing marginal utility. The cause of consumer surplus is the payment per unit based on the last value. Consumer surplus reflects the number of benefits obtained by someone in buying each unit of product at the same price level (Khoirudin & Khasanah, 2018).

The demand curve measures the amount of value that consumers are willing to pay for each product that will be consumed. Consumer surplus is estimated by the number
of visits in a period as the dependent variable and travel cost data as the independent variable. The number of visits and travel costs are expected to have negative values indicating that if travel costs increase, visits will decrease.

### 2.4. Economics Value Valuations

The value of the use of Mount Bromo tourism is estimated using the Travel Cost Value (TCM). TCM is calculated by multiplying the total consumer surplus with the estimated population of Mount Bromo tourism visitors in one year. According to Haab and McConnell (2002), consumer surplus can be calculated by the following equation:

\[
\text{Costumer surplus} = \left( \frac{V^2}{2\beta} \right) \\
\text{TCS} = \text{CS} \times N
\]

The symbol \( V \) represents the average number of individual arrivals, while \( \beta \) is the coefficient of consumer spending during the trip. The total value of consumer surplus value (TCS) is obtained by multiplying the average value of consumer surplus (CS) with the total visitors in one period (N).

### 2.5. Demand Theory

Demand for goods and services is the quantity of goods and services that consumers are willing to pay for various price levels in a certain period (Puspitaningtyas & Ulfa, 2019). This indicates that the emphasis on a person's consumption is influenced by the price level (Parnabhati & Puspaningtyas, 2020). Demand theory explains the characteristics of the influence between quantity demanded and price (Dewi, 2018). Assuming cateris paribus, the law of demand states that the lower the price of an item, the demand for that item will increase, conversely, the higher the price of an item, the demand for the item will decrease (Maskar et al., 2020).

The demand function represents the relationship between the quantity demanded by consumers and various other variables. The demand function is as follows:

\[
Q_x = a - bP_x
\]

Where:

\( Q_x \) : Quantity of product \( x \) demanded \\
\( P_x \) : Product price \( x \) \\
a and \( b \) : Parameter
3. Data Description

The characteristics of the respondents obtained in this study include the gender of the respondents, the type of visit, the distance from the respondent’s house, the intensity of the visit, Mount Bromo Tourism facilities, the suitability of the entrance ticket price, and the suitability of the price of the tourist attraction. This study involved 119 respondents who had visited Mount Bromo Tourism in the past year. The survey was carried out by researchers in the period 2022, which is a year that is sufficiently feasible for researchers to conduct surveys by the desired qualifications of the respondents after there were strict restrictions on community activities in 2020 and 2021. The results are as follows:

![Figure 2: Proportion of Respondents by gender.](source: Processed Data, 2022)

Of the total 119 research samples, the majority of respondents were women with a percentage of 54.6%, while the rest were men with a percentage of 45.4%.

![Figure 3: Respondent’s Type of Visit.](source: Data on Process, 2022)

On average, visitors come to the Mount Bromo Tourism Area in groups with a percentage of 66.9%. In addition, as many as 28.8% of visitors travel with their families. The remaining 4.2% make individual tours to Mount Bromo.

Based on Figure 4.3, the distance from the visitor’s house to the Mount Bromo Tourism object ranges from 0 km to 50 km with a percentage of 38.7%. Furthermore, 29.4% of respondents have a house distance of 51 km to 100 km. The third order is respondents with a house distance of 101 km to 150 km with a percentage of 13.4%. In fourth place, 7.6% of respondents have a distance of more than 251 km from Mount Bromo Tourism. The fifth order is respondents with a house distance of 151 km to 200 km by 6.7%.
Finally, the least are respondents with a house distance of 201 km - 250 km from Mount Bromo Tourism.

Most Mount Bromo tourists visit once a year, with a percentage of 72.9% of respondents. The maximum number of visits tourists make is more than five times, while the minimum visits are once a year. Tourists who visit more than five times a year are very few, namely 1.7% of the total respondents.

Figure 6 shows that as many as 48.3% of respondents think that the facilities of Mount Bromo Tourism object are pretty complete. A total of 44.1% of respondents think that the facilities of Mount Bromo Tourism object are complete. In the third position, 3.4% of respondents thought the facilities were still incomplete. Similar to
the percentage of respondents who think that Mount Bromo's facilities are incomplete, 3.4% of respondents feel that Mount Bromo's facilities are complete. The remaining 0.8% of respondents stated that the facilities of Mount Bromo were incomplete.

![Compatibility of Entrance Ticket Prices](image1)

*Figure 7: Compatibility of Entrance Ticket Prices.*

Based on Figure 4.7, as many as 80.3% of respondents think that the entrance ticket price for the Mount Bromo tourist attraction is on the respondent's willingness to pay. Others, as many as 19.7% of respondents, stated that the price of admission to the Mount Bromo tourist attraction was not by the desire to pay.

![Compatibility of Tourism Object Tariff Prices](image2)

*Figure 8: Compatibility of Tourism Object Tariff Prices.*

According to the data obtained, 65% of respondents stated that the rates for Mount Bromo Tourism Objects which consist of horses, tours, savanna, and whispering sand, are by the wishes of the respondents to pay. The remaining 35% of respondents stated that the fees applied were not by the respondents' wishes to pay.

4. Results of Analysis

This study examines the effect on the number of visits to Mount Bromo tourist attractions (VISIT) with various factors, including travel costs (COST), income (INC), distance to tourist attractions (DIST), occupation (JOB), education (EDU), and age (AGES).
4.1. Classical Assumption Test

The classical assumption test is useful for ensuring that the resulting linear regression modeling is precise, unbiased, and consistent. The classic assumption test used is the normality test, heteroscedasticity test, and multicollinearity test.

4.2. Residual Normality Test

The normality test is used as a test for the regression model, the confounding or residual variables have a normal distribution. To test the assumption of normality, the Normal P-P Plot graph is used.

![Normal P-P Plot Graph](image)

Source: Processed Research Data (2022)

Figure 9: Normality Test Using Normal P-P Plot Graph.

The results of the normality test show that the residuals are normally distributed and the assumption of normality is well fulfilled as shown by the normal P-Plot graph in Figure 1 coincides with the diagonal line.

2. Heteroscedasticity Test

The heteroscedasticity test is used to test the regression model whether there is an inequality of variance from the residual of one observation to another observation residual. To test the assumption of heteroscedasticity, the Scatterplot graph is used.

The results of the heteroscedasticity test using the ZPRED and SRESID Scatter plot graphs are known that the plot points are scattered randomly and do not form a specific pattern, so the heteroscedasticity assumption is fulfilled.

3. Multicollinearity Test
Figure 10: Heteroscedasticity Test Using ZPRED and SRESID. Scatter Plot Graphs.

The multicollinearity test aims to test whether the regression model found a correlation between the independent variables (independent). The Variance Inflation Factor (VIF) test was used to test the multicollinearity assumption.

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>1</td>
<td>COST</td>
</tr>
<tr>
<td></td>
<td>INC</td>
</tr>
<tr>
<td></td>
<td>DIST</td>
</tr>
<tr>
<td></td>
<td>JOB</td>
</tr>
<tr>
<td></td>
<td>EDU</td>
</tr>
<tr>
<td></td>
<td>AGE</td>
</tr>
</tbody>
</table>

a. Dependent Variable: VISIT

The results of the multicollinearity test using the VIF test obtained that the VIF value of each independent variable is less than 10 (VIF < 10), meaning that there is no multicollinearity problem in the model, so the multicollinearity assumption is met.

5. Multiple Linear Regression

Linear regression analysis serves to obtain an overview of the influence between the independent variables on the dependent variable both overall (simultaneously) and individually (partial). The following shows the results of multiple linear regression between travel costs (COST), income (INC), distance to tourism objects (DIST), occupation (JOB), education (EDU), and age (AGE) on the number of visits to Mount Bromo.
tourist attractions (VISIT). The variable with a significant level at 0.10 degrees is the cost (COST) incurred by visitors to enjoy Mount Bromo tourism.

<table>
<thead>
<tr>
<th>No</th>
<th>Variables</th>
<th>Koeff.</th>
<th>t</th>
<th>Sig. t</th>
<th>Ket.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Constanta</td>
<td>4.022</td>
<td>5.467</td>
<td>0.000*</td>
<td>Sig</td>
</tr>
<tr>
<td>2</td>
<td>COST</td>
<td>0.0003</td>
<td>1.786</td>
<td>0.077**</td>
<td>Sig</td>
</tr>
<tr>
<td>3</td>
<td>INC</td>
<td>0.092</td>
<td>1.494</td>
<td>0.138*</td>
<td>No sig</td>
</tr>
<tr>
<td>4</td>
<td>DIST</td>
<td>-0.112</td>
<td>-1.995</td>
<td>0.048*</td>
<td>Sig</td>
</tr>
<tr>
<td>5</td>
<td>JOB</td>
<td>0.925</td>
<td>3.157</td>
<td>0.002*</td>
<td>Sig</td>
</tr>
<tr>
<td>6</td>
<td>EDU</td>
<td>-0.246</td>
<td>-2.236</td>
<td>0.027*</td>
<td>Sig</td>
</tr>
<tr>
<td>7</td>
<td>AGE</td>
<td>-0.109</td>
<td>-2.800</td>
<td>0.006*</td>
<td>Sig</td>
</tr>
</tbody>
</table>

*: sig 5%
**: sig 10%

Source: Processed Research Data (2022)

The results of the simultaneous influence were obtained by the calculated F value of 5.316 with a significance value of 0.000. These results show a significance value of less than 0.05 (sig < 0.05), so it is stated that travel costs (COST), income (INC), distance to tourism objects (DIST), occupation (JOB), education (EDU), and age (AGE) simultaneously has a significant effect on the number of visits to the tourist attractions of Mount Bromo (VISIT).

The results of the coefficient of determination obtained an R Square value of 0.220. These results indicate that the significant influence on the number of visits to Mount Bromo tourist attractions (VISIT) can be explained by 22.0 percent by travel costs (COST), income (INC), distance to tourist objects (DIST), occupation (JOB), education (EDU), and age (AGE).

The results of the partial influence on the number of visits to Mount Bromo tourist attractions (VISIT) are described as follows:

1. A constant value of 4.022 indicates that there is no influence from several variables in this study including travel costs (COST), income (INC), distance to tourist attractions (DIST), employment (JOB), education (EDU), and age (AGE), the number of visits (VISIT) will increase by 4,022 or about 4 times.
2. The travel cost variable (COST) has a regression coefficient value of 0.0003 with a significance value of 0.077 (sig < 0.10) meaning that the higher the travel costs will not have a significant effect on the number of tourist visits.

3. The income variable (INC) has a regression coefficient value of 0.092 with a significance value of 0.138 (sig > 0.05) meaning that higher income will not have a significant effect on the number of tourist visits.

4. The variable distance to the tourist object (DIST) has a regression coefficient of -0.112 with a significance value of 0.048 (sig < 0.05) meaning that the farther the distance to the tourist object will have a significant effect on decreasing the number of tourist visits.

5. The employment status variable (JOB) has a regression coefficient value of 0.925 with a significance value of 0.002 (sig < 0.05) meaning that the more visitors who have jobs will have a significant effect on increasing the number of tourist visits.

6. The education variable (EDU) has a regression coefficient of -0.246 with a significance value of 0.048 (sig < 0.05) meaning that more and more visitors who have higher education will have a significant effect on decreasing the number of tourist visits.

7. The age variable (AGE) has a regression coefficient value of -0.109 with a significance value of 0.006 (sig <0.05) meaning that the older the visitor’s age will have a significant effect on the decrease in the number of tourist visits.

\[
\text{VISIT} = 4,022 + 0.0003 \times \text{COST} + 0.092 \times \text{INC} - 0.112 \times \text{DIST} + 0.925 \times \text{JOB} - 0.246 \times \text{EDU} - 0.109 \times \text{AGE} + e
\]

The results of the multiple linear regression test showed that the distance to tourism objects (DIST), occupation (JOB), education (EDU), and age (AGE) had a significant influence on the number of visits to Mount Bromo tourist attractions (VISIT).

6. Discussion

6.1. Multiple Regression Analysis

Based on the resulting multiple linear regression equation model, the data can be interpreted as follows:

1. \( A = 4,022 \)

The regression coefficient shows that if the independent variables (travel, income, distance to tourism objects, occupation, education, and age) have no effect, the number of visits will increase constantly, which is 4.022 times.
2. $\beta_1$ COST = 0.0003

The variable coefficient of travel costs (COST) showed insignificant results. This is indicated by the results of the T test of 0.077 (sig < 0.10) so that the travel cost variable is significant. The variable of travel costs is said to be insignificant because people tend not to take into account the costs used in visiting Mount Bromo Tourism objects.

3. $\beta_2$ INC= 0.092

No significant relationship was found between people's income and the level of visits to Mount Bromo. This is evidenced by the results of the T test of 0.138 (sig > 0.05) on these variables. This result contradicts Keynes's theory which states that when an individual's income increases, consumption also increases. If interpreted in the form of goods, people tend to see tourism activities to Mount Bromo as inferior goods.

4. $\beta_3$ DIST = – 0.112

The regression coefficient for the distance variable (DIST) shows that if the distance traveled by visitors increases by 1 km, the number of visits to Mount Bromo will decrease by 0.112. There is a negative influence between the distance variable and the visited variable. The further the distance to Mount Bromo, the fewer visits will decrease. Long-distance travel takes up a lot of visitors' time and energy and carries a greater health risk. These results also indicate that the close location of Mount Bromo makes the opportunity for people to visit Mount Bromo greater.

5. $\beta_4$ JOB = 0.925

The coefficient of employment variable (JOB) shows that if the number of people who have jobs increases by 1%, then the visit to Mount Bromo will increase by 0.925. There is a positive influence between work and tourist visits to Mount Bromo. The high level of labor absorbed makes the wheels of the household economy move significantly. The movement of the wheels of the economy encourages spending in the tourism sector which currently cannot be separated from people's lives.

6. $\beta_5$ EDU = (– 0.246)

The variable coefficient of Education (EDU) shows that if education increases for one year, then the number of visits to Mount Bromo will decrease by 0.246. There is a negative influence between education and visits to Mount Bromo, where the higher the education, the lower the number of visits to Mount Bromo. This can
happen because the high level of education makes people think about the costs and benefits before visiting a tourist spot. In addition, education opens knowledge about other tourism according to the needs of visitors.

7. $\beta_6 \text{AGE} = -0.109$

The age variable coefficient (AGE) shows that if the age of visitors increases by one year, the visitation rate will decrease by 0.109. There is a negative influence relationship between the age variable and the variable of tourist visits to Mount Bromo. The older a person is, the higher the number of visits to Mount Bromo will decrease. This can happen because Bromo's low temperature is not suitable for people with old age, so people tend to avoid this tourist spot as they get older.

### 6.2. Estimated Economic Value of Mount Bromo Tourism Objects

The estimated economic value of the Mount Bromo tourist attraction can be calculated by determining the level of consumer surplus per year and then multiplied by the total number of visitors in the previous year.

**Average consumer surplus.**

\[
\text{Consumer Surplus Mean (CS)} = \frac{V_{\text{mean}} \times \frac{2}{2\beta}}{2 \times 0.000000003} = \frac{1.49167 \times 2}{2 \times 0.000000003} = \text{Rp497.223.333}
\]

Where:

- $V =$ average number of visits
- $\beta =$ travel cost coefficient

According to the calculation results, the average consumer surplus value in one year is Rp 497,223,333. To get the economic value of Mount Bromo Tourism, the impact of the consumer surplus is multiplied by the number of visitors to Mount Bromo for one year.

\[
\text{Travel cost} = \text{CS} \times N = \text{Rp497.223.333} \times (11.166 \times 12) = \text{Rp497.223.00} \times (133.992) = \text{Rp66.623.948.879.955.34}
\]

Based on data, the number of visitors to Mount Bromo in one month can reach 11,166 people. This number is the average number of visits per month throughout 2021. The previous consumer surplus results were multiplied by the number of visitors for
12 months to produce an average economic value of IDR 66,623,948,879,955 for one year.

The resulting valuation value has relatively returned to the tourism valuation value of Mount Bromo before the Covid pandemic. Regulations limiting people’s space for activities, including visiting tourist sites, reduce income from nature tourism sites. However, in the period after Covid-19, the community’s economic value for Mount Bromo has returned. This shows that Mount Bromo activity in tourism tends to recover quite quickly. This valuation value also shows the economic value of Mount Bromo nature tourism which is quite high. The management of Mount Bromo tourism needs to be improved again so that it can better support the community’s economy. The impact of management that is not good enough causes the local government to lose high natural tourism assets and reduce regional original income. This will cause considerable losses as a result of the local government not having any income if this tourism does not generate income for the surrounding community as during the Covid-19 pandemic.

7. Conclusions

The implication of this research is that the increase in tourist visits to Mount Bromo is positively influenced by community work. The number of workers absorbed into the world of work drives the household economy, thereby increasing tourism activities. Based on these results, the government needs to expand employment opportunities so that more and more unemployment problems are solved.

Another implication that can be obtained in this study is the decrease in public interest in visiting Mount Bromo Tourism caused by several things, including distance, education, and age. A long journey that takes a lot of energy and time. In addition, in the era of the pandemic, long distance travel is a new health threat that needs to be considered. In addition, higher public education makes people think about the costs and benefits of visiting Mount Bromo Tourism. Increasing age makes visits to Mount Bromo decrease because the temperature of Mount Bromo Tourism is not suitable for people with old age. Some of these things can be overcome by the government by strengthening health protocols, facilitating accommodation, providing attractive promos to tourists, and establishing health outlets to ensure tourists stay comfy.
ACKNOWLEDGEMENT

Thank you very much to the Malang State University for providing the 2022 research and service grant program and the research team who are eager to complete this research, as well as the respondents who have helped a lot in our survey.

References


