RESEARCH PAPER

Economic value of Bandung Orchid Forest, West Java

Fikri Nugroho Utomo[*], Dika Supyandi, Nur Syamsiyah, Ernah
Dept. of Socioeconomic of Agricultural, Faculty of Agriculture, Universitas Padjadjaran, Indonesia

Abstract. Indonesia has various tourist attractions. Agro-tourism is one of the potential tourism. Orchid Forest is an agro-tourism object that combines pine forest areas with orchid cultivation. Tourist attractions that utilize the potential of natural resources have an unknown economic value. This research aims to know the economic value of Orchid Forest and what factors influence the frequency of visits. This research used an individual travel cost method (ITCM) to estimate the economic value of Orchid Forest. The results indicate factors that significantly influence the frequency of visits are respondents' age and residence distance. The value of consumer surplus is Rp 102,000 and the economic value of Orchid Forest in 2019 was Rp 70,365,618,000. This value will give a new perspective for public authorities for the protection and further development of tourist attractions in the future.

Keywords: economic value; travel cost method; tourism; Orchid Forest

1. Introduction

The wealth of natural resources owned by Indonesia can be utilized for the tourism sector. The beauty of natural resources is supported by the Indonesian state which is an archipelago with a variety of cultures and languages. These various potentials can be utilized to continue to improve the development of the tourism sector.

Domestic and foreign tourist trips have increased every year. In 2018, 303 million people did domestic trips, while the number of foreign tourist trips reached 17 million people (BPS, 2018b). The number of foreign tourist trips made Indonesia able to obtain a foreign exchange in 2018 of US $ 16.1 billion or around Rp 228 trillion, while domestic tourist trips made about US $ 17.1 billion or around Rp 241 trillion (BPS, 2018a). The high number of the visit shows the role of the tourism sector for the national economy which is very important seen from its contribution through foreign exchange earnings, regional development, regional income, absorption of new investment, expansion of employment opportunities and the development of various businesses that reach remote areas in Indonesia (Anggraini & Riyanto, 2017).

To increase the role of the tourism sector, various provinces in Indonesia made various efforts to develop the tourism sector. One effort is to open a new tourism object that suits the

needs of the community. Nowadays, attractions such as nature tourism are favorite for people to visit (Hidayat, 2011). Community needs for conservation-based attractions to provide awareness for stakeholders to make improvements in the tourism sector (Priambodo & Suhartini, 2016). West Java is one of many provinces that is making improvements in the tourism sector. The number of tourist attractions in West Java is 1480 with an average tourist arrival of domestic trips is 40 to 50 million people per year (BPS Provinsi Jawa Barat, 2018).

One area known for its tourist attractions in West Java is West Bandung Regency, which has a variety of attractions such as nature tourism, culture tourism, and special interests. Agro-tourism is one type of tourist attraction located in West Bandung Regency. Agro-tourism is included in nature tourism which utilizes the potential of agriculture as a tourist attraction, starting from the diversity of production activities, the uniqueness of the local population, and its natural beauty (Utama & Junaedi, 2015). One of the agro-tourism objects in West Bandung Regency is Orchid Forest. Orchid Forest is a tourist attraction that combines pine forest areas with orchid cultivation. Orchid Forest stands on an area owned by Perum Perhutani. Perum Perhutani is a state-owned enterprise of Indonesia that has the duty and authority to manage state forest resources on the islands of Java and Madura. One of the Perum Perhutani units is BKPH Lembang which has a total area of pine forest about 4.103,32 Ha of which around 12 Ha is utilized by Orchid Forest. Utilization of forest areas as nature tourism is regulated in government regulations of the Republic of Indonesia Number 6 of 2007 about Forest System, Preparation of Forest Management Plans and Forest Utilization (Presiden Republik Indonesia, 2007). The establishment of nature tourism must not reduce, change, or eliminate its main function as forest, changing landscapes, and damage the balance of environmental elements.

Natural resources form ecosystem services such as regulatory services like flood protection and purification of water and air, provisioning services like crop, food, and lumber, support functions like soil formation and habitat provision, and cultural services like education and recreational experiences. Orchid Forest as a tourist attraction produces goods and services obtained from natural resources that can include cultural service. Goods and services produced from natural resources such as the value of beauty and recreational experience are difficult to know the market price. The value generated from natural resources can be called an ordinal use-value because the benefits obtained from consuming these goods and services cannot be quantified (Sukirno, 2016). The authorities usually don't value goods and services from natural resources in accurate economic and monetary terms (Azmi, 2014). This situation can lead to failure determination of the value of natural resources or underestimation of the true value of the resources (Azmi, 2014). Often environmental services such as tourism are not valued by humans (Saragih, Mahenda, & Sudarma, 2019). Giving economic value can be used as a reference in determining whether the tourist attraction is worth maintaining or not (Wanti, Syaukat, & Juanda, 2014). Research on the economic value of orchid forests has also never been done.

When managing natural resources like forests, mountains, and rivers, it is necessary to know its value in order to give visibility and assist in management decision making. The economic valuation of non-marketed resources can be developed from two different approaches: stated and revealed preference methods (Fauzi, 2004). In stated approaches, individuals are asked to give a value defined by their willingness to pay for the resource. Unlike stated preference that used a hypothetical scenario, the revealed preference method is based on observed behavior and data obtained indirectly. The travel cost method is used to estimate the

value of recreational benefits generated by a recreational area (Leh, Mokhtar, Rameli, & Ismail, 2018). The concept of travel cost method is by using an individual's travel cost data as a proxy for the recreational value of an area. The basis of this method applies the consumers' willingness to pay (WTP) concept for the cost of visiting a recreational area (Fauzi, 2004). Visitors have to spend money on their recreational activities such as fuel, food, parking, and ticket price. Visitors' frequency of visits is also important to measure the economic value of a tourist attraction. The travel cost method uses actual behaviours and choices to infer values. This method also uses information regarding actual behaviours rather than verbal responses. It is based on the simple and reasonable assumptions that travel costs reflect the value of recreation. The travel cost method has been widely applied to areas with strong recreational uses (lakes, beaches, forests, etc.). This work aims to assess the economic value of the Orchid Forest by applying the travel cost method. The ticket price to entrance Orchid Forest is Rp 35,000 per person. The amount of revenue from ticket price received by Orchid Forest cannot be used as a basis for determining economic value because the economic value of the tourist area is the amount paid by consumers plus the value of consumer surplus (Isnan, 2015).

Tourism areas are natural sources of non-market goods. This is due to the fact that recreational areas are difficult to calculate the value. The economic valuation of an ecosystem or natural resources area is very important in measuring the value of the area. Economic value assessment of natural resources is crucial to encourage entrepreneurs and policymakers to provide more benefits to the short-term economy and long-term development towards the benefits that are related to tourist attraction. The basic assumption of economic value is that the value of all goods can be expressed in an equivalent term of money and the value will be based on good utility contributions to humans (Leh et al., 2018).
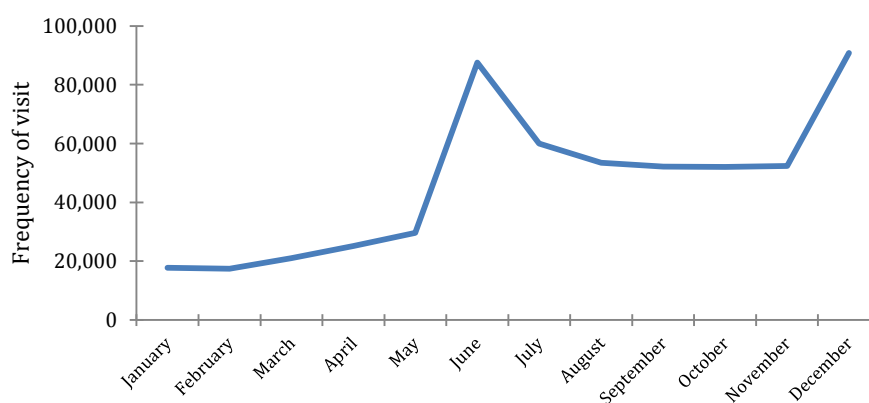

Figure 1. Frequency of visitors at Orchid Forest in 2018 (Source: Management of Orchid Forest)

The data obtained show that Orchid Forest was most visited in the holiday season, namely in June and December. While in other months, the number of Orchid Forest visitors did not increase significantly. The absence of an increase in the number of visitors can also be detrimental to food vendors and workers in Orchid Forest. One of the successes of attractions is an increase in the number of tourists, so it is necessary to know the factors that influence the frequency of visits by Orchid Forest tourists which is also part of the economic value estimation process. Knowing the characteristics of visitors is also important for Orchid Forest to knows better about the target market. The objectives of this study were to determine the economic

value of Orchid Forest using the travel cost method and find out the factors that influence the frequency of visits of Orchid Forest tourists. Knowing this value will give strong support to all projects or activities undertaken by public authorities for the protection and further development of the area in the future.

2. Literature review
2.1. Tourism

Tourism is a temporary trip to the place carried out by individuals or groups with the aim of obtaining happiness and balance with the environment in the social, cultural, natural, and scientific dimensions (Spillane, 1991). There are so many types of tourism such as cultural tourism, maritime tourism, nature tourism, convention tourism, agricultural tourism, and hunting tourism (Pendit, 2003). Cultural tourism is tourism conducted by people to other places to learn about the condition of the surrounding community. Maritime tourism is tourism filled with activities involving sports in water such as diving, fishing, sailing, surfing, and other recreation that is usually done on the beach, lake, or sea. Nature tourism is tourism conducted in nature reserves, national parks, protected forests, mountainous areas whose sustainability is protected by law. Convention tourism is tourism with the aim of attending conferences, deliberations, or meetings that are national and international in nature. Agricultural tourism is tourism to see agricultural projects, plantations, or nursery fields where tourists can study or look around while enjoying the beauty of existing plants. Hunting tourism is tourism for hunting in areas or forests established by the government (Pendit, 2003). Orchid Forest can be called a combination of nature tourism with agricultural tourism because it's a combined pine forest with orchid cultivation.

2.2. Agro-tourism

Based on a joint decree between the Minister of Agriculture and the Minister of Tourism, Post and Telecommunications Number: 204/KPTS/30HK/050/4/1989 and KM Number. 47/PW.DOW/PPT/89 about the coordination of agro-tourism development, defines agro-tourism as a series of tourism activities that utilize agricultural business as a tourist attraction with the aim to broaden horizons, carry out travel, recreation, and establish various business relationships within the scope of agriculture.

Agro-tourism activities are not only intended as a recreation but more broadly than that has the aim to provide education for visitors about various activities undertaken in agriculture (Utama & Junaedi, 2015). To make agro-tourism more attractive, collaborations can be made between the culture of the local community, the natural beauty contained in it, and agricultural production technology. The development of agro-tourism provides benefits for local communities and government in terms of increasing income and improving the national economy (Sastrayuda, 2010).

2.3. Economic value

The total economic value is divided into use values and non-use values. Use values are further subdivided into direct use values, indirect use values, and option values. Direct use value is the value of benefits that can be directly derived from natural resources. For example, the benefits of using forest resources as a recreational site and inputs for the production process as consumer goods. Indirect use values are an interaction between ecosystem service with human

activities directly or indirectly such as various functional benefits, namely the self-purification effect of water bodies or water filtration capacity of soils. Optional value refers to the value of direct and indirect uses that have the potential to be generated in the future. This includes the benefits of natural resources that are stored or maintained for future use such as forest resources that are devoted to future harvest. Another example is genetic resources from forests to maintained biodiversity. Non-use values are divided into existence value and bequest value. Existence value is the value of one's concern for the existence of forest in the form of value given by the community to the forest area for spiritual, aesthetic, and cultural benefits. While the bequest value is the value given by people who live today to forests in order to remain intact to be given to future generations. These values are not reflected in market prices (Grunewald & Bastian, 2015).

Natural resources can produce goods and services that are consumed directly and indirectly. In addition, natural resources also produce environmental services that can provide benefits in cultural service such as recreational experience. These benefits are often referred to as ecological benefits which are not counted in a comprehensive calculation of the value of resources. The value contained in natural resources is not only in the form of goods that can be counted in monetary terms, but there is also the value of environmental services that is often ignored. Attractions are included in the direct use value where people consumed. It is produced from attractions in the form of goods and services. Attractions produce goods and services that have a market value and do not have a market value such as beauty and comfort. The effort that can be used as a joint view is the price tag of environmental goods and services produced called economic value. In general, economic value is defined as a measurement of the maximum amount of a person who wants to sacrifice goods and services to obtain other goods and services (Fauzi, 2004).

2.4. Travel cost method

The travel cost method is used to analyze the demand for recreational activities. This method utilizes the cost of the trip spent by each visitor who visits the recreation area by analyzing the expenses of visitors which later can be obtained how much value can be given by visitors to natural resources and the environment. The purpose of the travel cost method is to find out the use value of natural resources through a proxy approach. The point is that consumer spending to consume goods and services from natural resources is used as a proxy to determine the price of these resources. The individual travel cost method uses a more detailed survey of visitors (Fauzi, 2004).

The individual travel cost method is used to estimate the economic value of a tourist site based on an assessment given by each individual of the costs incurred to visit a tourist attraction which can include transportation costs, consumption costs, entrance fees, parking fees, tourist attraction fees, and lodging fees. People's willingness to pay to visit this location can be assumed based on various travel costs (Zulpikar, Prasetiyo, Shelvatis, Komara, & Pramudawardhani, 2017). Travel costs can also be calculated based on visitor expenses which include transportation costs, entrance fees, souvenir costs, consumption costs, and other costs (Priambodo & Suhartini, 2016).

2.5. Demand function

Demand is the desire of consumers to buy an item at various price levels over a certain period of time (Sukirno, 2016). The law of demand states that the amount of goods requested in a given period of time changes the opposite of the price if other things are assumed to be fixed. The demand function is an equation that shows the relationship between the amount of demand for an item and all the influencing factors (Sukirno, 2016). To determine the demand function for tourist visits is through the approach of individual travel cost methods using econometric techniques such as multiple linear regression.

The demand function for tourist attractions can be influenced by socioeconomic variables that affect tourist visits such as travel costs, education level, total income, and the number of groups (Priambodo & Suhartini, 2016). Demand for tourist attractions can be influenced by the distance that is inversely proportional to demand where the farther the distance the number of visits decreases (Saptutyningsih & Ningrum, 2017). The demand function will be used to determine the consumer surplus which will later be useful to estimate the economic value of a tourist attraction. Consumer surplus is the difference between the amount paid by consumers to get an item and the willingness to pay. Consumer surplus can occur if consumers receive benefits more than what has been paid (Samuelson & Nordhaus, 2009). This advantage comes from the law of diminishing marginal utility. Simply stated, the consumer surplus can be measured as a field that lies between the demand curve and the price line (Sukirno, 2016).

3. Research methods
3.1. Research site

This research was carried out at Orchid Forest in Lembang District, West Bandung Regency, West Java, Indonesia. This location was chosen because Orchid Forest is a new tourist attraction that is being favored by people with its unique concept of agro-tourism and digital tourism. Orchid Forest is a tourist attraction that opened in August 2017. This site is the result of a collaboration between Perum Perhutani, Banten Regional, West Java with a national private company, PT. Jala Energy. The collaboration is a form of utilization and optimization of the potential of forest areas through the cultivation of orchid plants and the development of new tourist attractions. The development of new tourist attractions is an effort made to increase income from the non-timber forest products sector.

Orchid Forest has an area of about 12 hectares and surrounded by pine forests. The site owns about 150 local and foreign orchids. Visitors can learn various types of orchid plants at Orchid House. In addition, there are also other attractions such as a Wood Bridge that is a 125-meter long wooden bridge that stretches between pine trees, the Amphitheater is an open area that is often used as a gathering place and musical events, Putt-Putt Golf is a place to play golf, and Orchid Castle is a children's playground in the form of a palace. Other facilities such as restaurants and food courts are also available. Visitors will walk around the Orchid Forest area on foot. Orchid Forest has provided a shuttle at the exit that takes visitors to return to the parking area.
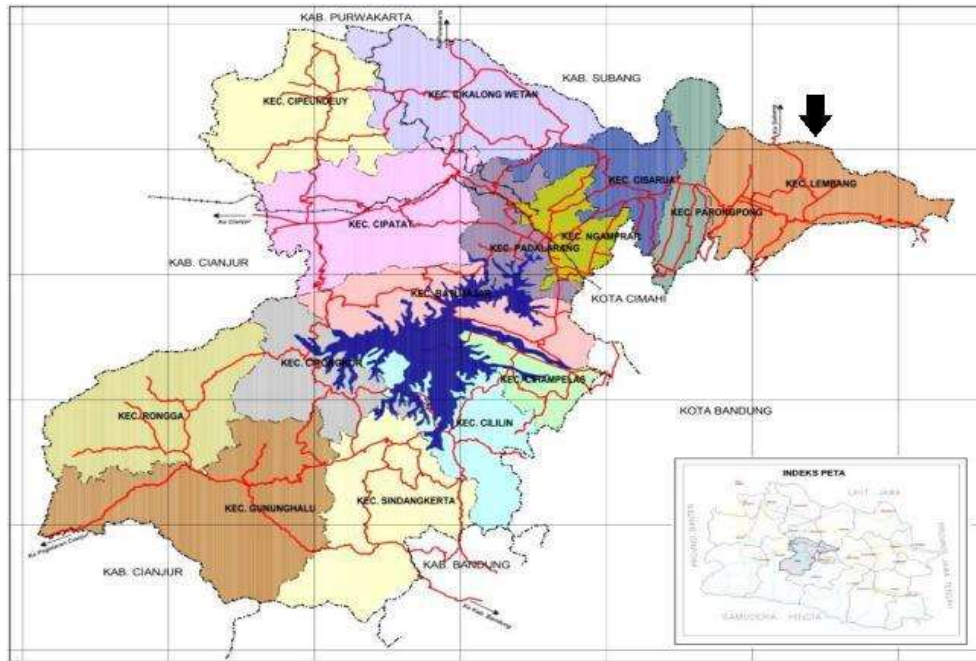
Figure 2. Map of research location (Source: BAPPEDA, West Bandung)

3.2. Data collection

This research uses quantitative research design. This method is used to examine specific populations or samples and collect data using research instruments. The data analysis used in this study is statistical quantitative in order to test the hypotheses that have been set (Sugiyono, 2017). The research method used was the survey method. The survey method was used to analyze the economic value of Orchid Forest. The survey method was done by observing the symptoms that occurred directly in a community. The survey method is research conducted on large or small populations by taking samples from one population and using a questionnaire as the main data collection tool (Sugiyono, 2011). The sampling technique used in this study was systematic random sampling. The determination of the number of samples is based on the Slovin method in Equation 1.

$$n = \frac{N}{1 + N(e)^2} \tag{1}$$

The average number of visitor's population per month (n) based on Figure 1 is 46,353, and the error tolerance (e), according to the Slovin method is 10%. The results of the calculation show that this study should involve 99.78 visitors at a minimum. The visitors who can be a sample in this study must be at least 17 years old. The number of samples that will be used in this study is 100 respondents.

3.3. Data analysis

Data in this study were analyzed using descriptive analysis. Descriptive analysis is used to describe the characteristics of tourists. The economic value will be estimated through the travel cost method. The travel cost method is used based on the assessment given by each individual of the costs incurred to visit a tourist attraction. Multiple linear regression is used to find out the

factors that influence the visit with the frequency of visits as the dependent variable and age, education, income, number of groups, distance, and travel costs as the independent variables. The demand function model is presented in Equation 2.

$$y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \varepsilon \tag{2}$$

In this study, the frequency of visits (y) will be used as the dependent variable and age (x_1), the education level (x_2), total income per month (x_3), number of groups (x_4), the residence distance to Orchid Forest in kilometers (x_5), and travel cost in rupiah (x_6) will be used as the independent variables, that assumed will influence the frequency of visits. Constants (α) and coefficient (β) will be obtained from the regression results. Before conducting multiple linear regression analysis, it is necessary to ensure that the regression model has passed the three classic assumption tests, namely the normality test to find out whether the regression model is normally distributed, multicollinearity test to find out whether there is a correlation between the independent variables, and the heteroscedasticity test to find out whether there is an inequality of variance from residual observations to other observations in the regression model (Ghozali, 2018).

The travel cost method aims to estimate the economic value of Orchid Forest. Travel costs in this study are all costs incurred by visitors on one trip including consumption costs during recreation, transportation costs, entrance fees, tourist attraction fees, parking fees, and lodging costs. The calculation of the economic value of Orchid Forest is carried out by the individual travel cost method. The individual travel cost method is based on a survey of Orchid Forest visitors. The travel cost coefficient obtained from multiple linear regression analysis will be used to calculate the consumer surplus. Consumer surplus is a proxy of the value of willingness to pay for attractions (Fauzi, 2004). Consumer surplus is calculated using the formula in Equation 3.

$$CS = \frac{n^2}{2b_1} \tag{3}$$

Consumer surplus per individual (CS) will be obtained by dividing the frequency of visits by visitors who used to be a sample (n) by two times the coefficient of travel cost variable (b_1). After obtaining a consumer surplus value, the next step to determine the economic value of Orchid Forest is to divide the value of the consumer surplus by the number of visits made by individuals to obtain a consumer surplus per individual per visit. The consumer surplus is then multiplied by the number of visitors in 2019. The multiplication results are the economic value of Orchid Forest within one year.

4. Results and discussion
4.1. Tourist characteristics

Tourists who came to Orchid Forest were 58 women and 42 men. This shows that female tourists dominate more than male tourists. Women's dominance also occurred in the research of Zulpikar et al. (2017) about the economic value of Batu Karas Beach using the travel cost method. Age of respondents visiting Orchid Forest consisted of various ages from 17 years to 65 years old with the majority of respondents coming from the age group of 21-30 years old as many as 44 people. While there were 20 people aged less than 20 years old, people aged 31-40 years old were 17 people, people aged 41-50 years old were 15 people, and those aged over 50

year old were four people. Research conducted by Sunarti et al. (2018) on the economic value of the Waterfall of Nupobombake Village also shows that the majority of respondents were from the age group of 21-30 years old as many as 52 people.

The education level of Orchid Forest tourist respondents were seven junior high school graduates, 48 high school graduates, 44 bachelor graduates, and one master graduate. In this study, the education level of high school graduates were being the most. Respondents with the highest level of high school education also occurred in the research by Natio (2018) about the economic value of the Armaya Bath with 71 people out of 100 respondents. This study also shows that in 100 respondents there were 34 private employees, 21 students, 13 civil servants, 18 entrepreneurs, 11 housewives, two freelancers, and one respondent was Indonesian National Army. Research by Maria et al. (2013) on the economic value of Danau Sentarum National Park also shows the majority of respondents who worked as private employees.

Most respondents had an income level of Rp 1,000,000 - Rp 5,000,000 as many as 47 people, Rp 5,000,000 - Rp 10,000,000 as many as 33 people, Rp 10,000,000 - Rp 15,000,000 as many as 1 person, and more than Rp 15,000,000 as many as 9 people. This shows the level of income of respondents is quite high. Research by Pancawati et al. (2016) on the economic value of Situ Cipondoh with the travel cost approach also shows income levels in the range of Rp 1,000,000 - Rp 5,000,000 as many as 45 people out of 50 respondents. Based on the area of origin, as many as 36 people came from Bandung and 64 people came from outside Bandung such as Jakarta, Bogor, Tangerang, Bekasi, Karawang, Subang, Garut, Tasikmalaya, and Cianjur. Respondents were also dominated by the arrival with family or friends as many as 91 people and a group of people (more than 10 people) as many as 9 people. Research conducted by Natio (2018) also shows that respondents who came with family were 95 people out of 100 respondents. As many as 96 out of 100 tourist respondents came to Orchid Forest using private vehicles, either two-wheeled vehicles or four-wheeled vehicles. While the rest used rental vehicles of four people. The same thing happened in a study by Sunarti et al. (2018) where respondents who used private vehicles were 59 out of 100 respondents.

For the frequency of visits, respondents who visited Orchid Forest for the first time were 43 people, while those who visited for the two times were 26 people; three times visits as many as 17 people; four times visits as many as 12 people, while more than four visits amounted to two people. From these results, it can be seen that the majority of respondents were first-timer. Most of the respondents knew Orchid Forest from electronic media such as the internet and television as many as 61 people. While the rest knew from friends or family as many as 39 people. All tourist respondents who visited Orchid Forest had a vacation destination. The number of respondents who have a higher vacation destination is similar to the study conducted by Sinaga and Istiqomah (2018) on the economic value and management strategies carried out at Kawah Putih Tourism Area, Ciwidey.

4.2. Factors influenced visit to Orchid Forest

Before a regression test is performed, the classic assumption test is first performed which includes the normality test, the multicollinearity test, and the heteroscedasticity test. The normality test uses a probability plot that if the points are near or close to the diagonal line, it can be said that the data is normally distributed. From Figure 3, it shows that the data or the points are near to the diagonal line, so it can be said that the data is normally distributed.
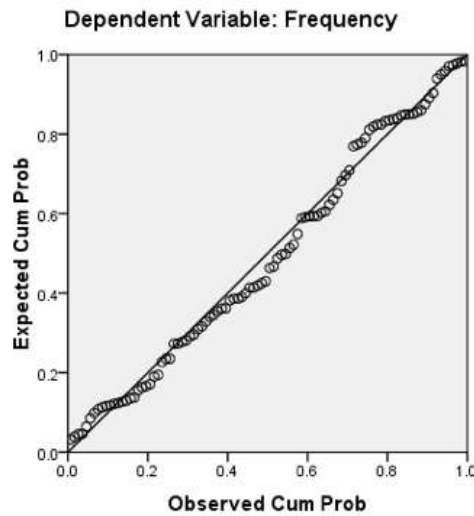
Figure 3. Normal P-Plot of Standardized Residual

The multicollinearity test is used to know whether in the regression model there is a correlation between independent variables or not. A good regression model has no correlation between independent variables. The basis for the decision making in the multicollinearity test uses the amount of Variance Inflation Factor (VIF) and tolerance. If the VIF value is less than 10 and if the tolerance value is more than 0.10, then there is no multicollinearity. Based on Table 1 the tolerance value of each independent variable is more than 0.10 and the VIF value of each independent variable is less than 10.00. This shows that there are no symptoms of multicollinearity in this regression model.

Table 1. Multicollinearity Test

Model	Collinearity statistics	
	Tolerance	VIF
(Constant)	0.783	1.277
Age	0.828	1.208
Education	0.790	1.266
Income	0.905	1.105
Number of entourages	0.653	1.532
Distance	0.543	1.840
Travel cost	0.783	1.277

The heteroscedasticity test is performed to find out whether there is a variance or residual inequality from one observation to another in the regression model. Heteroscedasticity in the regression model does not occur if the significance value is more than 0.05 (Ghozali, 2018). Based on Table 2, it can be seen that the significance value of each variable is more than 0.5. This shows that there are no symptoms of heteroscedasticity in the regression model.

Table 2. Heteroscedasticity Test

Model	T	Sig.
(Constant)	2.781	0.007
Age	-0.955	0.323
Education	0.523	0.602
Income	0.448	0.655
Number of entourages	-1.794	0.076
Distance	1.744	0.084
Travel cost	1.790	0.087

To calculate the economic value, an analysis of the factors that influence tourist visits needs to be done using multiple linear regression. Based on the regression results in Table 3, the demand functions of Orchid Forest tourist visits obtained are as follows:

$$y = 4{,}652 - 0{,}030x_1 - 0{,}132x_2 - 0{,}01686x_3 - 0{,}006x_4 - 0{,}019x_5 - 0{,}001x_6$$

Table 3. Results of the regression demand function

Predictors	Coefficient	t	Sig.
(Constant)	4.652	7.077	0.000
Age	-0.030	-2.844	**0.005***
Education	-0.132	-0.729	0.468
Income	-0.01686	-0.359	0.720
Number of entourages	-0.006	-1.013	0.314
Distance	-0.019	-3.845	**0.000***
Travel cost	-0.001	-0.926	0.357
R²	0.253		
Adj. R²	0.205		

Table 3 shows that the value of Adjusted R Square (Adj. R^2) or the coefficient of determination is equal to 0.205 or 20.5%. The value of the coefficient of determination shows how the dependent variable can be explained by the independent variables contained in the regression model. While the remaining 79.5% is explained by other variables not included in the model. A partial test (T test) has also been carried out on each independent variable. T test was conducted to find out how far the independent variables individually influenced the dependent variable (Ghozali, 2018). The following is the explanation of the effect of each variable:

a. *Age (x_1)*

The age variable has a negative influence on the frequency of visits where if there is an increase in age assuming the other variables are fixed, there will be a decrease in the frequency of visits by 0.030%. If visitors' age has increase, then the desire to travel decreases. This can happen because Orchid Forest's potential target market is people in the young group age who really like to visit new tourist attractions. Age significantly influences the frequency of visits. In the research of Zulpikar et al. (2017) age had a negative coefficient with a value of -0.002.

b. *Education (x_2)*

The education variable has a negative influence on the frequency of visits where if there is an increase in education assuming the other variables are fixed, there will be a decrease in the

frequency of visits by 0.132%. This can happen because most of the tourists were high school graduates. People with higher education levels may choose other tourist attractions. Education does not significantly influence the frequency of visits. The negative effect of the education variable also occurs in research by Natio (2018), where the coefficient value was -0.022.

c.   Income (x_3)

The income variable has a negative influence on the frequency of visits where if there is an increase in income, there will be a decrease in the frequency of visits by 0.01686%. This can happen because most tourists had the lowest income level in Rp 1,000,000 - Rp 5,000,000. Income does not significantly influence the frequency of visits. Research conducted by Khoirudina and Khasanah (2018) also shows a negative income coefficient of -0,000341.

d.   Number of groups (x_4)

The number of groups variable has a negative influence on the frequency of visits where if there is an increase in the number of groups, there will be a decrease in the frequency of visits by 0.006%. This happened because most of the tourists came with family which was less than 10 people. The number of groups does not significantly influence the frequency of visits. Research conducted by Zulpikar et al. (2017) also shows a coefficient of -0.084.

e.   Distance (x_5)

The distance variable has a negative influence on the frequency of visits where if there is an increase in distance of one percent, there will be a decrease in the frequency of visits by 0.019%. This happened because most tourists came from Bandung which is near Orchid Forest. Distance significantly influences the frequency of visits. Research conducted by Wanti et al. (2014) also shows a negative distance coefficient of -0.0358.

f.   Travel cost (x_6)

The travel cost variable has a negative influence on the frequency of visits where if there is an increase in travel costs by one percent, there will be a decrease in the frequency of visits by 0.001%. The cost of travel does not significantly influence the frequency of visits. Research by Sinaga and Istiqomah (2018) also shows a negative coefficient of variable travel costs of -0,677.

F test was performed to determine the level of significancy of the independent variables together or simultaneously affected the dependent variable (Ghozali, 2018). If the significant value < 0.05 then it means that the independent variables simultaneously influence the dependent variable. Table 4 shows that the significant value obtained is 0,000 < 0.05, this shows that the variables of age, education, income, number of groups, distance, and travel costs simultaneously affect the frequency of tourist visits.

Table 4. Result of F test

	Sum of Squares	df	Mean Square	F	Sig.
Regression	33.828	6	5.638	5.247	0.000
Residual	99.932	93	1.075		
Total	133.760	99			

a. Predictors: (Constant), travel cost, number of groups, education, age, income, distance
b. Dependent Variable: Frequency of visits

4.3. Economic value

The economic value is carried out using the Individual Travel Cost Method (ITCM). In this method, the calculation of consumer surplus must be done first to obtain the economic value of a tourist attraction. The results of economic value calculations can be seen in Table 5.

Table 5. Calculation of economic value of Orchid Forest

Information	Number	Unit
Number of respondents (a)	100	person
Respondents visit (b)	204	time/year
Number of visits in 2019 (c)	689,859	time/year
Travel cost coefficient (d)	0.001	unit
Consumer surplus (e) = $b^2/2d$	20,808,000	rupiah
Consumer surplus/individu/visit (f) = e/b	102,000	rupiah
Economic value (g) = f xc	70,365,618,000	rupiah

Based on the results of interviews with 100 respondents, the frequency of visits by respondents in the past year was 204 times. The coefficient of travel costs obtained is equal to 0.001. The value of the consumer surplus of Orchid Forest tourists is Rp 102,000 per person per visit. The economic value of Orchid Forest is obtained by multiplying the consumer surplus per individual per visit with the number of visits in 2019. The economic value obtained is Rp 70,365,618,000, while the revenue from the admission ticket in 2019 is Rp 24,146,065,000. This can be interpreted that Orchid Forest has great benefits as a tourist attraction.

5. Conclusion

The analysis performed in this study is based on one of the most used environmental assessment methods which is the travel cost method. Based on the results of the analysis conducted, the estimated economic value of the Orchid Forest using the travel cost method in 2019 was Rp 70,365,618,000 per year with a consumer surplus per visit of Rp 102,000. This calculation is based on actual individual choices, which means that it is based on their actual behaviours. Knowing this value will give another perspective for public authorities for the protection and further development of tourist attractions in the future. Orchid Forest is the result of cooperation between the private company and the state-owned company. Its existence should be able to contribute to the local and national economy. At the local level, it can provide great benefits to society such as renting food stands for local residents and employing local residents as staff. In addition, tourism objects must also pay taxes to the local government as a contribution to the local economy. At the national level, the arrival of foreign tourists will give foreign exchange.

Orchid Forest tourists are dominated by women. Most tourists aged 21-30 years, work as private employees, and come from Bandung City. Most tourists came with their families. From the regression analysis, the results show that age and residence distance significantly influence the frequency of visits during the year. Knowing about characteristics and which factors influence the frequency of visits will help the management of Orchid Forest to know better about the target market. Management can focus to improve the quality of the area or further development of the site for touristic reasons. These improvements can even lead to higher

values in the future since the number of tourists can significantly rise because of the higher quality of the area. Public authorities must also look at the impact caused by Orchid Forest on the natural conditions. The existence of Orchid Forest should not damage the surrounding habitat. Therefore, further research is needed regarding the impact of the existence of Orchid Forest on the environment. Contingent valuation method can be used as an analysis of consumers' willingness to accept damage caused by the presence of a tourist attraction.

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