Research article

Visitor Perception and Economic Value Estimation of Mekarsari Fruit Garden as Agritourism Destination in Indonesia

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Abstract With abundant natural and cultural resources, Indonesia has great potential in the tourism sector significantly contributing to GDP. To achieve its long-term benefits, there is a need to address tourism development, focusing mainly on how to create various types of tourism combined with education and the environment, such as agritourism. Mekarsari Fruit Garden (MFG) is Indonesia's largest agritourism destination and education, research, and training center for horticultural plant germplasm. Although MFG experienced a 70% drastic decrease in visitors in 2013, visitors started to increase in 2014. However, MFG has not reached the same number of visitors as its peak years. This study aimed to determine visitor perception and agritourism economic value of MFG in Bogor Regency, West Java, towards finding sustainable and innovative ways to increase visitors and expand the business. Specifically, this study aimed to identify visitor characteristics and their perception of MFG using factor analysis, determine the frequency of visits and economic value using the travel cost method, and formulate the sustainable development plan for MFG. A questionnaire survey of 321 visitor-respondents and key-informant interviews of MFG executives were also conducted. Factor analysis on visitor perception identified three factors: (1) location, facilities, and agritourism operation characteristics, (2) agritourism attractiveness characteristics, and (3) agritourism support characteristics. Moreover, the travel cost method revealed that MFG had a high economic value amounting to Rp 107 billion per year. As a recommendation, MFG should continue its operations and improve its facilities and services offered due to prevailing high economic value and the willingness of its visitors to pay more, in addition to its significant role as the preservation and education center of tropical horticulture in Indonesia.

Keywords agritourism, factor analysis, travel cost method

INTRODUCTION

As a tropical country with abundant natural and cultural resources, Indonesia has great potential in the tourism sector, significantly contributing to GDP. World Travel and Tourism Council (2018) reported that travel and tourism generated Rp 787,100 billion (5.8% of GDP) and created 12.2 million jobs (10% of total employment) in 2017. The World Tourism Organization (WTO) refers to the economic importance of tourism for future growth, employment, and development (WTO, 2003). The Indonesian tourism sector is one of the sectors with a positive revenue earning, based on the contribution of foreign tourists and domestic tourists spending generated 58.7% of direct travel and tourism GDP in 2017 compared with 41.3% for foreign visitors (World Travel and Tourism Council, 2018).

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Along with the increasing public interest in tourism, the tourism sector could provide long-term benefits if the management carried out sustainable and environmentally friendly initiatives (OECD, 2020). Therefore, there is a need to address the development of the tourism sector, focusing mainly on creating various types of tourism combined with education and the environment, such as agritourism. There are many definitions of agritourism and many agriculture-related tourism that are similar to agritourism. For example, agritourism is identical to "farm tourism" (Busby and Rendle, 2000; Getz and Carlsen, 2000). Agritourism and rural tourism are not the same. Agritourism may also be seen as a segment within rural tourism (Roberts and Hall, 2001; Wilson et al., 2001). Rural tourism, agritourism, and active tourism are directly connected to rural areas (Hegarty and Przezborska, 2005). Agritourism refers to commercial enterprises offering festivals and educational events related to agricultural production and processing through tourism. These enterprises attract visitors onto a farm, ranch, or other agricultural business to entertain and educate the visitors and generate income for the farm, ranch, or business owner (McGehee and Kim, 2004; The National Agricultural Law Center, 2018). Thus, opportunities for agritourism development offer the tranquility and natural atmosphere of an agricultural area to attract many tourists. Integrating agriculture (agri-industry) and tourism in a particular undeveloped region's economic development planning can be considered an alternative (Satriawan, 2005).

Located in Bogor Regency, West Java Province, Mekarsari Fruit Garden (MFG) has been the venue to cultivate, preserve and showcase Indonesian tropical horticulture since 1995. However, MFG has experienced a drastic decrease in the number of visitors. From the peak year at 1.6 million visitors in 2008, the number of visitors has decreased ever since. Due to the global crisis, MFG also experienced a drastic 70% decrease in visitors in 2012 and 2013. Although the MFG manager had a target to attract 1 million visitors in 2014, MFG has had around 200,000 visitors per year since 2016 (Mekarsari Fruit Garden, 2018), conveying that this is the most crucial issue to be addressed immediately.

OBJECTIVES

This study aimed to identify characteristics of visitors and their perception of MFG using factor analysis, determine the frequency of visits and economic value in MFG using the travel cost method, and formulate the sustainable development plan for MFG.

METHODOLOGY

This study utilized primary data from a questionnaire survey, key-informant interviews, and direct observation in August 2018, with a preliminary survey in February 2018. There was a total of 321 domestic tourist respondents.

Factor Analysis

Factor Analysis (FA) was utilized to determine visitors' perception towards MFG. The Travel Cost Method (TCM) was used to estimate the economic value and development of MFG tourist activities. Principal Component Analysis (PCA) and FA are statistical techniques applied by researchers when there is a need to find which variables are related to one another. Variables correlate with each other but are independent with other subsets, a combination of variables in the factor. Factors reflect the underlying process that correlates with variables (Umar, 2009).

Travel Cost Method

Travel Cost Method is used for calculating the economic values of environmental goods or services. It is mainly applied for determining the economics of recreation. It can also serve as a basis for evaluating how an increase in entrance fees will affect the number of visitors. Willingness to pay for a site visit is thus estimated based on the number of trips they make at the different travel costs. This

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is called a revealed preference technique because it 'reveals' the willingness to pay based on the consumption behavior of visitors (Healy et al., 2013).

Individual TCM is the best tool to estimate the value of the recreational costs incurred by the visitors to visit the place. Thus, an increase in travel costs is expected to decrease the number of visits by the visitors. Researchers use this inverse relationship between travel cost and the number of visits to map/design a travel demand function of the place of interest. Then from the demand function, the consumer surplus is calculated, representing the recreational value of the place of interest (Alam et al., 2017).

RESULTS AND DISCUSSIONS

FA revealed that visitors' perceptions on the facilities are essential to make MFG one of the best examples of agritourism in Indonesia. The results of FA processing and Promax rotation are shown in Table 1.

Table 1 The result of factor analysis of visitors' perception

	Factor 1	Factor 2	Factor 3	Average	SD
Access to location	**0.892**	-0.197	0.207	3.794	0.501
Security	**0.859**	0.083	0.045	3.829	0.466
Tourism object management	**0.775**	0.121	0.093	3.838	0.480
Can eat and pick the fruit directly	**0.696**	0.370	-0.092	3.844	0.468
Educational activities	**0.670**	0.164	0.176	3.850	0.477
Farm tour	**0.562**	0.190	0.270	3.838	0.473
Facilities and infrastructure	**0.542**	0.062	0.421	3.841	0.477
Support local economy	**0.533**	0.433	0.035	3.841	0.477
Petting zoo	**0.530**	0.253	0.203	3.841	0.477
Location hygiene	**0.521**	0.114	0.357	3.835	0.469
Trash can	**0.463**	0.139	0.416	3.847	0.466
Spend time with family	-0.193	**1.028**	0.129	3.885	0.496
Experience	0.132	**0.934**	-0.117	3.879	0.482
Family atmosphere	-0.136	**0.894**	0.211	3.866	0.498
Fresh fruit	0.383	**0.720**	-0.133	3.860	0.450
Quality	0.270	**0.668**	0.074	3.860	0.457
Price	0.304	**0.586**	0.110	3.847	0.452
Support local agriculture	0.367	**0.519**	0.128	3.860	0.464
Convenience	0.404	**0.507**	0.118	3.841	0.464
Learn or be taught how fruits is produced	0.458	**0.480**	0.086	3.850	0.450
Natural panorama	0.205	**0.468**	0.253	3.879	0.507
Souvenir kiosk	0.030	0.088	**0.904**	3.841	0.503
Toilet	0.404	-0.707	**0.659**	3.841	0.503
Restaurant	0.147	0.259	**0.613**	3.835	0.488
Proportion var	0.244	0.235	0.105		
Cumulative var	0.244	0.479	0.584		

Sources: Field survey, 2018

Factor 1 comprises the visitor's perception of the "Location, Facilities and Agritourism Operation Characteristics." Factor 1 was the main reason why visitors chose to visit MFG rather than other tourist attractions. Specifically, "Can eat and pick the fruit directly from the tree" was the main reason that made MFG distinct from other tourist attractions and the main attraction of MFG. Factor 2 is about "Agritourism Attractive Characteristic." Factor 2 revealed that visitors could enjoy natural panoramas, spend time with their family and friends, and have a family atmosphere that cannot be found in other tourist attractions. Factor 3 is about "Agritourism Support Characteristics." Factor 3 can be considered the additional factor/reason for traveling to MFG, conveying the importance of improving its restaurants or souvenirs kiosk to attract visitors further. Improvements may include menu development for restaurants related to increasing usage of fresh fruit ingredients, facility renovation, the introduction of new souvenirs, and branch establishment of restaurants or souvenir kiosks outside MFG or nearby areas. It would be more effective if these improvements were Instagram or SNS-worthy.

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The recreation demand model at MFG was carried out to estimate the effect of several socio-economic variables on the frequency of tourist visits using a zero-truncated Poisson regression model. Table 2 shows the results of Poisson regression analysis with a p-value of less than 0.05, conveying that the opportunity to reject the equation model was minimal and the occurrence of errors was very minimal. The regression coefficients that influence the frequency of visits (Y) were travel cost (X1), transportation by bus (D3), and accompany with friends (D4) at 1% level of significance, while public transportation (D1), accompany by family (D4), and no accompany (D6) at 0.1% level of significance. The zero-truncated Poisson regression analysis results indicated that five variables influence the chances of the average number of MFG visits.

Table 2 Result of Poisson regression analysis

	Coefficients	Z value	P value	
Constant	-0.166	-0.346	0.729	
Travel cost	-1.909×10^{-6}	-2.456	0.014	*
Income/month (IDR)	-1.193×10^{-8}	-0.520	0.603	
Transport by public (Yes:1, No:0)	0.840	3.227	0.001	**
Transport by car (Yes:1, No:0)	-0.167	-1.159	0.246	
Transport by bus (Yes:1, No:0)	1.039	2.143	0.032	*
With family (Yes:1, No:0)	1.325	3.011	0.003	**
With friends (Yes:1, No:0)	1.163	2.562	0.010	*
No accompany (Yes:1, No:0)	1.345	2.832	0.005	**
Marital status_NM (Yes:1, No:0)	-0.139	-1.095	0.273	
Smpl	311			
Log L	-404.577			

Source: Field survey, 2018. Note. Signif codes: 0.001 (**), 0.01 (*)

a. Travel Cost

Based on the results of analysis using Poisson regression, it is known that the probability value of actual travel costs at the 1% level conveys that the travel costs significantly affect the number of visitors. The coefficient value, which has a negative sign (-1.909b×10-6), indicates that the higher the value of travel costs will further reduce the number of goods consumed. This negative sign result had similarities with Khoshakhlagh et al. (2013). Therefore, travel cost seemed to be a significant factor in the decision to carry out recreational activities.

b. Public Transportation

The variable public transportation explains how much the availability of public transportation affects the frequency of visitor visits. Results showed that the variable had a positive coefficient with 0.1% level of significance, conveying that the more a person visits MFG by public transportation, the higher the chances of visiting again in the future.

c. Transportation by Bus

Most visitors (group of friends or family members of more than ten people) come to MFG by bus (public transportation). Bus transportation is considered more effective to bring many visitors or bring visitors who come in a group. Results showed that the variable had a positive coefficient with a 1% level of significance, conveying that the more a person visits MFG in a group using bus transportation, the higher the chances of visiting again in the future.

d. Accompany with Family

Accompany with family had a positive coefficient with a 0.1% level of significance, conveying that the more a person visits MFG with their family, the higher the chances of visiting again in the future. Results showed that 54% of visitors visited MFG together with their families.

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e. Accompany with Friends

Visiting with friends had a positive coefficient with 1% level of significance, conveying that the more a person visits MFG together with their friends, the higher the chances of visiting again in the future.

f. No Accompany/Alone

Variables of visiting to MFG alone had a positive coefficient with 0.1% level of significance, conveying that the more a person visit MFG alone, the higher the chances of visiting again in the future.

Determination of the total economic value of MFG is based on the surplus consumer value estimated from the previously formed recreational demand function. Consumer surplus on total visits per individual can be measured through the formula:

$$CS = -\frac{N^2}{2b1} \quad (1)$$

whereas, CS = Consumer Surplus (Rp/person), N = Frequency visits per person, b1 = Coefficient from variable travel cost from Table 2.

$$CS = -\frac{1}{-1.909\ x\ 10^{-6}} = Rp\ 523{,}834 = \$36.421\ US\ dollars \quad (2)$$

The consumer surplus concept is an indicator of visitors' ability to want to pay more than the current one. Based on the calculation above, the surplus consumer value per individual per year was Rp 523,834 (USD 36.42, exchange rate on January 2019: 1 USD = 14,382.51 rupiah). Therefore, consumer surplus in a year (calculated based on 205,108 people in 2017) was Rp 107,442,640,126 (USD 7,470,368). This economic value of MFG conveys its high economic value. Therefore, the MFG should continuously carry out the management and operations of its facilities and infrastructure.

CONCLUSION

This study aimed to determine visitor perception and agritourism economic value of MFG in Bogor Regency, West Java, towards finding sustainable and innovative ways to increase visitors and expand the business. Visitor's perception can be divided into three factors: factor 1 as "Location, Facilities, and Agritourism Operation Characteristics" was the main reason why visitors choose to visit MFG rather than other tourist attractions, for example, can eat and pick up the fruit directly from the tree; factor 2 as "Agritourism Attractive Characteristics," which attracts visitors to visit MFG (e.g., can enjoy natural panoramas, spend time with their family and friends, and have a family atmosphere that cannot be found in other tourist attractions); and factor 3 as "Agritourism Support Characteristic" that can be considered as an additional reason for MFG visit, conveying that the improvement of services and facilities in the restaurant and souvenir kiosks should be prioritized to attract visitors further or encourage an increase in frequency visit. Improvements may include menu development for restaurants related to increasing usage of fresh fruit ingredients, facility renovation, the introduction of new souvenirs, and branch establishment of restaurants or souvenir kiosks outside MFG or nearby areas.

Travel costs, public transportation, transportation with bus, accompany with family, accompany with a friend, and accompany alone significantly influenced the frequency of visits to MFG. Travel cost method revealed that MFG had a high economic value amounting to Rp 107,442,640,126 (USD 7,470,368, exchange rate on January 2019: 1 USD = 14,382.51 rupiah) per year. Annual consumer surplus value per individual was estimated at Rp 523,834 (USD 36.421). Therefore, the MFG should continue its operations and improve on its facilities and services offered due to its high economic value and the willingness of its visitors to pay more for its facilities services, in addition to its significant role as the preservation and education center of tropical horticulture (fruits) in Indonesia.

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We acknowledge that our study has a number of limitations because all respondents in our research are domestic tourists. For future research, it would be better if we could combine opinions about MFG from foreign tourists with domestic tourists so that MFG can develop better and also be widely known by all foreign tourists. With the global recognition of MFG, Indonesia's tropical fruits will be sustainable.

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