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Research Article

Demand Analysis of Apple Pick Tour in Makmur Abadi Farmers Group, Batu, Indonesia

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ABSTRACT

Agriculture tourism sector in Batu, Indonesia has strong potential with its natural environment. The Makmur Abadi farmers group is one of the farmer groups in Tulungrejo that offers apple pick tours. Visitors to Makmur Abadi have been increasing in recent years. This study aims to know visitors characteristics, factors that affects visit frequency and analyze the consumer surplus value of tourists in Makmur Abadi using travel cost method. The primary data was collected from visitors of Makmur Abadi from July to August 2013 and was analyzed using multiple regression models. The results shows that the characteristics of visitors in Makmur Abadi are dominated by visitors who are 31-40 years old, 69% respondents are males and 31% are females with most of the visitors already married. Most of the visitors have obtained the educational qualification of bachelor or diploma and most of the visitor's occupation being government employees and entrepreneurs had personal income ranging from Rp. 3,000,000 – Rp. 4,999,000 per month. 83% of the visitors have only 2-5 leisure periods per month and most of the visitors came from Java, Bali and Sumatra Islands. The factors that significantly affects visit frequency are income, travel time Makmur Abadi, leisure time, marital status, revisit, infrastructures, and perception. The consumer surplus in Makmur Abadi apple pick tour is Rp. 2,584,390 per year per person.

Keywords: Agriculture tourism, farmers group, demand, visit frequency, consumer surplus.

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1. INTRODUCTION

Tourism can have positive and negative impacts on the economic, socio-cultural and environmental sectors of a community, therefore, there is need for good management of tourism to increase its benefits and minimized the negative impacts that occur due to tourism activities. One of the activities that can be an option to increase the economic sector without giving a negative impact to the socio-cultural sector and to environmental sustainability is natural tourism such as agriculture tourism.

Agriculture tourism can be developed in the world, especially in developing countries because the agriculture sector is a major sector that has the largest contribution to the development of any country. According to the Food and Agriculture Organization (2014), agriculture was the mainstay of employment around the world. The number of workers in this sector reached over one billion in 2009. Government expenditure on agriculture is positively and highly correlated with capital formation, confirming the decisive role of such expenditure in creating an enabling environment for infrastructure and sustainable access to natural resources. Indonesia is one of the countries that have great potentials in the agriculture sector. According to International Labour Organization (2013), the agriculture sector supports the livelihood millions of Indonesians, with more than 60 percent of the population living in rural areas, farming remains the main occupation and a source of income for the country's population. Agriculture sector also contributes to economic development in Indonesia. According to Oxford Business Group (2013), Indonesian agriculture contributed around 14.7% to GDP in 2012 and employed around 36.5% of the population, or 112.8 million people. The development of the tourism sector also increases with the increase in the number of employees employed in business services and accommodation services.

Table 1: Total Indonesian Resident Over 15 Years Old Based On Main Employment 2012-2013

No.	Main Employment	Number of People		
		February 2012	August 2012	February 2013
1	Agriculture, Plantation, Forestry, Hunting and Fishing	41,205,030	38,882,134	39,959,073
2	Mining and Quarrying	1,620,028	1,601,019	1,555,564
3	Industry	14,211,562	15,367,242	14,784,843
4	Electricity, Gas and Water	297,805	248,927	254,528
5	Construction	6,103,457	6,791,662	6,885,341
6	Trade, Restaurants and Accommodation Services	24,020,934	23,155,798	24,804,705
7	Transport, Storage and Communication	5,191,771	4,998,260	5,231,775
8	Financial Institutions, Real Estate, Rental and Business Services	2,779,201	2,662,216	3,012,770
9	Services Community, Social and Personal	17,373,017	17,100,896	17,532,590
10	Other	-	-	-
Total		112,802,805	110,808,154	114,021,189

Source: Indonesia Central Bureau of Statistics, 2013

Indonesia is one of countries in the world that has a great potential in tourism because of her great cultural and natural attributes that attract foreigners from the other countries who visit Indonesia for recreation. Agriculture tourism in Indonesia also has great potential because the largest occupation of the population in Indonesia is agriculture and Indonesia is one of the agriculture producers in Asia. Batu is one of the cities in Indonesia; it is an Agropolitan city that is supported by good environmental condition and natural tourism potential. The areas that have potential in tourism and agriculture become the mainstay as comparative commodities. Agriculture tourism is an option to be developed in Batu by exploiting the potentials of agriculture and tourism.

Development of Batu as a based agriculture city have positive response from the society because the majority of the society in Batu have been using the environment for daily living since a long time ago, especially in taking advantage of agriculture land, livestock, fishery and tourism for survival. It is related with the function of Batu that is well supported by the Brantas River, one of the conservation national regions that purposed to make Batu become a place that is safe, comfortable, productive and sustainable as an Agropolitan city and leading tourism city in East Java. The potential of agriculture tourism sector in Batu still needs to develop further infrastructure optimally with regards to environmental sustainability factors. This is because agriculture tourism is not just business services that shows beautiful scenery and fresh air, but also can serve consumer's needs such as a tool for promotion of agriculture products, media public education, and providing development opportunities diversified agribusiness products. The high level of tourist arrivals must be balance with an increase in the production of agriculture products. One approach that has been employed by farmers in improving agriculture production is to use intensive farming systems are largely derived from chemical inputs.

The success of agriculture tourism in Batu has made it highly competitive with the other tourism sectors in regards to attracting visitors. One of the leading agriculture tourism that have achieved a success story is Makmur Abadi farmers group in Tulungrejo that makes apple pick tours for agriculture tourism business. Makmur Abadi makes agriculture tourism about apple pick tours because they know that apple is the icon of Batu and apple is the potential commodity in Batu. The total visitors of apple pick tour Makmur Abadi since 2008 – 2012 have increased from 7,825 visitors in 2008 become 22,142 visitors in 2012. The Makmur Abadi members consist of apple farmers that already joined in November 10, 2002 have increased from 15 farmers to 53 farmers with a total managed area of 60 hectares.

One effort that can be used for make Makmur Abadi strategy stronger is that they must know the factors that affect visit frequency and surplus consumer value that visitor have from recreation in Makmur Abadi. The visit frequency factors and surplus consumer value are important to Makmur Abadi because they are the factors that must be increase to develop this agriculture tourism.

This study as one of the recommendations for policy-making and management strategy in apple pick agriculture tourism is based on what that visitors need and the benefits visitors get from this tourism. This information is important since this study has not been done previously because Makmur Abadi is a new organization and has tourism that is based on socio community, not business tourism industry. The several researches in Makmur Abadi apple pick tour are based on analysis of the sustainability of farming systems and development strategy from internal and external factors using SWOT analysis. The other reason this study is important is because Makmur Abadi has many tourism sites as a competitor, especially in Batu that the tourism development is growing fast in recent years. The big potential on tourism activity in Batu must be backed by good

management and cooperation that include responsibility from government, social community, and the tourism management body. Based on the research background, the objectives of this study are:

1. To analyze visitor characteristics in Makmur Abadi apple pick tour.
2. To analyze factors that affect visit frequency in Makmur Abadi apple pick tour.
3. To analyze the consumer surplus value of tourism in Makmur Abadi apple pick tour with travel cost method.

2. METHODOLOGY

Conceptual Framework

One of cities in Java that has a big potential in agriculture tourism is Batu and the Makmur Abadi Farmers Group as one farmers' group that has already achieved success enough through apple pick tour business since 2002. The management of tourism activity in Makmur Abadi is already good enough to do, but they need more information about what are the important factors for the increase or development that will make visitors to visit Makmur Abadi or revisit this tourism site. This study objectives are analyzes visitor's characteristics, the factors that affect visit frequency and the consumer surplus value of tourism in Makmur Abadi apple pick tour using travel cost method.

Travel Cost Method (TCM) is the theoretical approach to answer the research objectives in this study. According to Barlow (2008), the travel cost is the method to estimate economic valuation and present a revealed preference method because it looks at actual human behavior, and try to define the value people place on something. This study use travel cost method because some economic theories recognize that some of the costs and benefits from economic activities like recreation activities are not fully reflected in market price. So, in this study that uses travel cost method as the total number of visitors that spends for estimated costs and benefits that are not expressed in market prices are referred to as externalities.

The demographic characteristics and personal perceptions has affect to the visit frequency and consumer surplus of visitors in Makmur Abadi. The demographic factors that estimated affect tourism demand in this study are age, education, income and marital status. The demographic factors gradually can affect visitor decision to determine resources usage such as the number of travel cost to Makmur Abadi, travel time to Makmur Abadi, travel cost alternatives and leisure time. The personal perceptions that reflected the individual preferences and choices that estimated affect tourism demand in this study are revisit intentions, visitors visit day (holiday or non holiday), appraisalment of facility, attractions, infrastructures, comfort and perception during tourism activity in Makmur Abadi apple pick tour.

The characteristic of visitors are described by their demographic characteristics and personal reasons for visiting Makmur Abadi apple pick tour. Age, education, income, travel cost to Makmur Abadi, travel time to Makmur Abadi, travel cost alternatives, leisure, marital status, revisit, holiday, facilities, attractions, infrastructures, comfort and perception were analyzed with multiple regression model as factors that estimated affect visit frequency or demand in this study. The estimation of the consumer surplus used limitation integral with maximum and average travel cost that visitors spend during recreation activities in Makmur Abadi apple pick tour. The result in this study can use for Makmur Abadi to make strategic development and policy redesign.

Figure 1: Variables operational

Empirical Model

The empirical model in this research for estimated factor that affect visit frequency in Makmur Abadi apple pick tour is specified as a linier function:

$$Y = \beta_0 + \beta_1 \text{ age} + \beta_2 \text{ education} + \beta_3 \text{ income} + \beta_4 \text{ travel cost Makmur Abadi} + \beta_5 \text{ travel time Makmur Abadi} + \beta_6 \text{ travel cost alternatives} + \beta_7 \text{ leisure} + \beta_8 \text{ marital status} + \beta_9 \text{ revisit} + \beta_{10} \text{ holiday} + \beta_{11} \text{ facilities} + \beta_{12} \text{ attractions} + \beta_{13} \text{ infrastructures} + \beta_{14} \text{ comfort} + \beta_{15} \text{ perception} + \varepsilon$$

Where:

Y	: Visit frequency per year
β_i	: Parameters
Age	: Respondent age
Education	: Respondent education level
Income	: Respondent income per month
Travel cost Makmur Abadi	: Total travel cost to Makmur Abadi
Travel time Makmur Abadi	: Time toward Makmur Abadi
Leisure	: Respondent leisure time per month
Marital status	: Respondent marital status
Revisit	: Respondent revisit intention
Holiday	: Respondent visit day in Makmur Abadi
Facilities	: Score of facilities are available in Makmur Abadi
Attractions	: Score of attractions offered in Makmur Abadi
Infrastructures	: Score of infrastructure that supports tourism activities in Makmur Abadi
Comfort	: Score of comfort during tourism activities in Makmur Abadi
Perception	: Score of respondent perceptions about Makmur Abadi
ε	: error term

3. RESULT AND DISCUSSION

Data Description and Analysis

Data that were collected in this research included the factors that estimated affect visit frequency shown in descriptive statistics in Table 2.

Table 2: Descriptive Statistic

	Age (Year)	Education (Level)	Income (Level)	Travel Cost Makmur Abadi (Rp.)	Travel Time (Minute)	Travel Cost Alternatives (Rp.)	Leisure (Day)
Min	17	1	1	140000	15	62000	2
Mean	37.4	3.46	3.54	1044700	653.25	1064664	6.3
Max	70	5	6	3620000	2880	4880000	30
Std.Dev.	12.11	0.74	1.55	895718	620.94	981705	7.50

Source: Primary Data from 100 Respondents (2013)

Base on Table 2, the respondents' minimum age was 17 and a maximum age of 70 years, with mean 37.4 and standard deviation 12.11. The education qualification of the respondents is categorized into five levels of education, the minimum education of respondent is 1 for elementary school and maximum is 5 for master or doctor with mean 3.46 and standard deviation 0.74. The income of the respondents is categorized into six levels of income, and the minimum income of respondent is 1 for income less than Rp. 500,000 per month and maximum is 6 for income more than Rp. 5,000,000 per month with mean 3.54 and standard deviation 1.55. The minimum cost of the respondents during travel to Makmur Abadi is Rp. 140,000 and a maximum of Rp. 3,620,000 with mean Rp. 1,044,700 and standard deviation 895,718. The minimum travel time of the respondents toward Makmur Abadi is 15 minutes and maximum 2,880 minutes with mean 653.25 minutes and standard deviation 620.94. The minimum cost of the respondents during travel to alternative tourism areas is Rp. 62,000 and maximum Rp. 4,880,000 with mean Rp. 1,064,664 and standard deviation 981,705. The minimum leisure time of the respondent per month is 2 days and maximum 30 days with mean 6 days and standard deviation 7.50. The data for marital status, revisits and holiday are dummy data that have value 1 or 0 and the respondent perception, facilities, attractions, infrastructure and comfort are likert rank data that have values from 1 - 5, the

value 1 means that the condition is not good and the value 5 means that the condition is good, the rank depend on the score of respondents' satisfaction.

Visitors' Characteristics

Visitors' characteristics data includes age, sex, marital status, education, occupation, income, leisure and visitor's region. Visitors of Makmur Abadi apple pick tour have varied ages but most of the respondents are visitors that had ages around 31-40 years, about 35 persons. 69% of the respondents are males and 31% are females. Visitors of both genders have the same opportunity to take tourism decisions because the main reason for many visitors to undertake recreation is to spend their holiday with families or groups since such platforms fosters better learning. Most of the respondents are visitors that were married and visit Makmur Abadi apple pick tour because this tourism is one of the tourism choices that is good for learning or education about apple cultivation for their families.

Visitor of Makmur Abadi apple pick tour is come from different educational backgrounds with most of the respondents are visitors that has bachelor/ diploma as educational background from 49 persons. It means that most visitor of Makmur Abadi apple pick tour have enough education to be able to assess the tour's conditions objectively. Visitors of Makmur Abadi apple pick tour comes from different occupations. Most of the respondents are visitors that have jobs as government employees, numbering about 23 persons and entrepreneur, numbering about 22 persons. The visitors that have jobs as student, private employee and housewives are 15, 19, and 13 persons respectively. The other numbers of respondents are farmers and retired workers. The different occupations of respondents can cause variation because they have different assessment of this tour base on their knowledge, reasons for recreation and perceptions.

Most of the visitors are from the middle-income economy class that has an average income every month ranging from Rp. 3,000,000 – Rp. 4,999,000, they are about 34 persons in number. Other visitors have an income every month that ranges from Rp. 2,000,000 – Rp. 2,999,000, these visitors are about 28 persons in number. In terms of leisure time per month, 83 respondents have leisure time around 2-5 days every month, because they have recreation only during holidays or weekends. Most of them use holidays for recreation because they visit Makmur Abadi apple pick tour not only by themselves but with families or groups. Visitors of Makmur Abadi apple pick tour as respondents are domestic and international tourist, more than 90% of the tourists are domestic. Most of the visitors came from Java, Bali and Sumatra Islands. Makmur Abadi apple pick tour is popular in Batu because, this tourism centre has unique attractions, they offer tours of the apple plantations and maintain the pure condition for consumption, as visitors prefer to pick and eat apples from the cultivation area.

Factors that Affect Visit Frequency in Makmur Abadi Apple Pick Tour

Factors that affect visit frequency in Makmur Abadi apple pick tour were analyzed to know what factors significantly affect visitors to visit this tour, and how the management can considers these factors in developing tourism in these sites or make good policies to solve problems. The empirical results were analyzed by Minitab 16, and the results are shown in table 3:

Table 3: Visit frequency Analysis Result

Predictor	Coef	SE Coef	t	P	VIF
Constant	9.151	6.248	1.46	0.153	
Age	-0.956	1.515	-0.63	0.533	6.478
Education	-1.161	1.079	-1.08	0.290	3.115
Income	1.2900**	0.5815	2.22	0.034	4.568
Travel Cost Makmur Abadi	-0.0921	0.4099	-0.22	0.824	9.653
Time Toward Makmur Abadi	-0.4924*	0.2635	-1.87	0.071	7.493
Travel Cost Alternatives	0.1419	0.3996	0.36	0.725	8.169
Leisure	0.84204**	0.3784	2.23	0.03	3.084
Marital Status	0.8302*	0.4617	1.80	0.082	3.198
Revisit	1.3899***	0.4841	2.87	0.007	3.600
Holiday	0.4574	0.4657	0.98	0.334	3.188
Facilities	-1.0843	0.8697	-1.25	0.222	3.756
Attractions	-0.6929	0.6101	-1.14	0.265	2.116
Infrastructures	3.309***	1.008	3.28	0.003	2.871
comfort	0.384	1.054	0.36	0.718	2.523
Perception	-2.983**	1.209	-2.47	0.020	2.063
S = 6.25218		F-stat = 4.95			
R-Sq = 71.2%		F-table = 1.89			
R-Sq(adj) = 56.9%		F-prob = 0.000			

* : Significant at 10%

** : Significant at 5 %

*** : Significant at 1 %

Source: Primary Data from 100 respondents (2013)

Age, education, travel cost to Makmur Abadi, facilities and attractions are insignificant factors in the influence of visit frequency and has negative correlation sign with visit frequency as Y variable. Based on data, most visitors in Makmur Abadi were around 21-50 years old. Only a few of Makmur Abadi visitors who are over 50 years old travel to this location, possibly because the location of cultivation land have some uncertain natural conditions that makes it difficult for the older people to travel to Makmur Abadi. The preference of the visitors that have high education depends on the availability of facilities, attractions, and benefit that visitors get from recreation activities in Makmur Abadi or the other tourism sites. Therefore, the availability of facilities and good attractions has a good influence on visitors' tourism decisions. Travel cost to Makmur Abadi that visitor spend during tourism activities in Makmur Abadi include food cost, souvenir cost, travel agency tariff, transportation cost and other cost. When visitor spend more money to visit Makmur Abadi, they can change to the other tourism as alternative tour destination that have lower travel cost, this condition obeys the law of demand that says, when the price of goods increases, the demand for that particular goods decrease. Most of the consumers' reason for visiting Makmur Abadi is to explore the natural apple plantation that shows the real condition of apple farms. The consumers think that the availability of facilities and attractions in Makmur Abadi is good enough. This condition is supported by the respondents' perceptions about available of facilities and attractions, the respondents think that facilities and attractions in Makmur Abadi are already good and sufficient enough.

Travel cost alternatives, holiday, and comfort are insignificant factors that influences visit frequency and has positive correlation sign with visit frequency in Makmur Abadi. Travel cost alternative is the total cost visitors spend during tourism activities in alternative tourism sites around Batu which includes food cost, souvenir cost, travel agency tariff, transportation cost and other cost. The law of demand of goods describes when the prices of substitute goods increases, the demand for other goods will increase because consumers prefer to choose the same goods that have cheaper prices. Based on data, amusement park like Jawa Timur Park I and II, Batu Night Spectacular and Batu Secret Zoo are also favorite tourism destinations for visitor. Holiday is a dummy factor of the time used to visit Makmur Abadi. D=1 is for visitors that visit during holiday and D=0 is for visitors that visit when it is not a holiday. It means that during holiday, the potential of visit frequency in Makmur Abadi is higher than when it is not an- holiday. From 100 respondents, most of the respondents think that the level of comfort in Makmur Abadi is already good enough.

Income, travel time to Makmur Abadi, leisure, marital status, revisit, infrastructures, and perception are significant factors that affect visit frequency. Travel time to Makmur Abadi and perception has negative correlation sign with visit frequency. This means that increasing by one unit of those factors makes visit frequency decreases. Travel time has a negative coefficient that can be interpreted to mean that longer travel time to tourism activities can make travel cost higher. So, there is a tendency for travelers to divert from their tourist destination for recreation to closer areas. Most of the respondents have good perception about Makmur Abadi, but most of the respondent didn't want to revisit Makmur Abadi in future but chose to recommend other people to visit. Based on the interview, people always want to know more and get new experience, so after they visit Makmur Abadi, they usually want to recommend the tourist site to other people because they have good perception of recreation activities in Makmur Abadi.

Income, leisure, marital status, revisits and infrastructures has positive correlation sign with visit frequency. This means that increase by one unit of those factors makes visit frequency increase. The result in this regression equation about the correlation between income and visit frequency is same with the law of demand because increase of visitors' income brings about an increase in visitors' frequency, which is the demand of tourism. Leisure time has a positive effect on visit frequency because, when visitors have more leisure time for holiday, they can have more opportunities for recreation and to visit Makmur Abadi with families or friends. This condition is the same with the outcome of holiday, that holiday is one of the leisure times people can use to achieve tourism activities. Visitors who were married have more likelihood of visiting Makmur Abadi. This condition is supported by field data because most of the Makmur Abadi visitors are in family groups. Although visitors who are single still have the likelihood of visiting Makmur Abadi, because most of the reasons given by respondents who visit Makmur Abadi are rest and relaxation, to gather with family or friends and for office or school trip. From 100 respondents, 33 respondents want to revisit Makmur Abadi in future while most of the visitor, about 67 respondents, did not want to revisit Makmur Abadi. The low intention to revisit Makmur Abadi is a situation that requires the consideration of Makmur Abadi apple pick tour management in trying to develop tourism activities, although almost all respondent had a good perception of this agriculture tourism since they proceed to recommend Makmur Abadi to other people. The increasing infrastructure in Makmur Abadi will increase visit frequency. Consumers think that the infrastructure factor is important because infrastructure provides access to apple plantation, signpost location, map and local transportation.

The multiple regression result showed that the factors that significantly influence visitors' frequency are income, travel time Makmur Abadi, leisure time, marital status, revisit, infrastructure, and perception. This is supported by several previous researches. The other researches such as Kiss (2011), Blackwell et al. (2009), Andrianti (2005), Wedelia (2011), and Aprilian (2009) analyzed recreation demand, consumer surplus and visitor characteristics in deferent tourism sides. They estimated that demographic factors, social economic factors and personal recreation are reasons that have impact on recreation demand. Thus factors such as age, education, gender, income, travel cost, travel time, travel distance, travel cost alternative, leisure time, marital status, revisit intentions, holiday, facilities, attractions, infrastructure, comfort, perception, stay duration, and tax, have their levels of influence on visitors' frequency. According to Gitapati (2012), Wedelia (2011) and Aprilian (2009) the travel time toward tourism site have negatively influence on visitor's frequency because most of the visitors do not want to spend too much time in the trip. Income, leisure time, marital status, revisit intention, infrastructure have positive influence on visitors' frequency. This is also supported by Ojumu (2009), Gitapati (2012), Ardianti (2005) Wedelia (2011) and Aprilian (2009). But, according to Kiss (2011), there are no significant differences from the aspect of various demographic characteristics such as: age, gender, education level and income.

Consumer Surplus of Tourism in Makmur Abadi Apple Pick Tour with Travel Cost Method

In this study, the value of consumer surplus per year using individual travel cost method is obtained. It can be formulated as follow:

$$Dx = Qx = \alpha - \beta P$$

$$CS = \int_{P_e}^{P^1} f(Px) dP$$

Consumer surplus was analyzed using the result of regression between visitor frequency and independent variable give the new equation as follow:

$$Dx = Qx = 1.47 - 0.2 \times 10^{-6} \text{ Travel Cost Makmur Abadi}$$

The value of consumer surplus that was used as the limit integral used the median price of travel cost which is Rp. 1,044,700 (P^e) and the upper price of travel cost is Rp. 3,620,000 (P^1). From this calculation result we know that the value of consumer surplus per person per year is Rp. 2,584,390 and the average of visit frequency is 1.28 (1). From the analysis, the consumer surplus value is higher than ticket price to Makmur Abadi, which means that visitor has more value than total travel cost that they spend to go to apple pick tour. Visitors' resident from the other cities close to Batu and Malang, influences consumer surplus benefits by other visitors to become

higher because of the far distance and the kind of transportation they use get to Makmur Abadi influences visitor total travel cost. Based on field data, from 100 respondents, only 19 persons come from Malang and Batu, the other respondents come from Java, other islands, and Malaysia. The value of average visit frequency only 1, meaning that most of the respondents only come to Makmur Abadi apple pick tour once; they just want to have the experience of going to the apple plantations only and not more.

4. CONCLUSION AND RECOMMENDATION

Conclusion

There are several conclusions drawn at the end of the study. First, the characteristics of the visitors in Makmur Abadi are dominated by the following features: most visitors are around 31- 40 years old. 69% of the respondents are males and 31% are females with most of the visitor's already married. Most of the visitors' educational level obtained were either bachelor or diploma and most of visitors' occupation as government employee and entrepreneur with personal income around Rp. 3,000,000 – Rp. 4,999,000 per month, 83% of the visitors only have 2-5 leisure time per month and most of the visitors came from Java, Bali and Sumatra Islands.

The factors that significantly affect visit frequency are income, travel time to Makmur Abadi, leisure, marital status, revisit, infrastructures, and perception. Travel time to Makmur Abadi and perception have negative influence on visit frequency. Income, leisure, marital status, revisit, infrastructures have positive influence on visit frequency in Makmur Abadi apple pick tour. The higher factors that significantly influence visit frequency are revisit intentions and infrastructure. From this result, Makmur Abadi Farmers Group can make development strategies with considerations to the factors that significantly influence visit frequency, so as to attract more consumers.

The result of analyzing consumer surplus shows that the average of visitor frequency per person is 1.28 (1) and the value of consumer surplus in Makmur Abadi apple pick tour by travel cost method per year per person is Rp. 2,584,390. It means that the value received by visitor is greater than value paid to visit Makmur Abadi. The result of the consumer's surplus can be used for policy making in regards to ticket price in Makmur Abadi. Consumer surplus shows the value that consumers are willing to pay when they visit Makmur Abadi. When the price of ticket is higher than the price that consumers are willing to pay, the consumers can easily change to the other alternative options for tourism.

Recommendation

The result shows that consumers benefit a higher value than their travel cost to Makmur Abadi, therefore, the suggestions from this research are: management of Makmur Abadi apple pick tour must consider the following factors; income, travel time Makmur Abadi, leisure time, marital status, revisit intention, infrastructure, and perception factors for development of tourism activity, because they are the factors that affect visit frequency. The increasing of visit frequency is important for Makmur Abadi farmers group because, increasing of total visitor can make the income of the apple farmers to increase and Makmur Abadi can be a leading agriculture tourism in Batu.

Based on characteristics of the respondents in this study, management Makmur Abadi can know the market segmentation of Makmur Abadi apple pick tour. Management must optimize promotion with a family or group tour package for the young aged and middle class society. Another recommendation, based on the mean visit frequency, the number of visit frequency per person per years is just once, so management of Makmur Abadi apple pick tour must create a good strategy to attract visitor by increasing the variety of different products. Examples of other likely products are snacks, drinks, food, and other accessories. Makmur Abadi must also increase promotion strategies and make their tourism package to also include visiting the other tourism sites in Batu, thus, there is need for cooperation with the other recreation sites. In that way, visitors can be more interested and willing to revisit Makmur Abadi because it has many variations of tourism besides picking apple directly from the garden.

Future researches can totally optimize the respondents and add some variables that were not included in this study such as respondent's knowledge about tourism, gender, stay duration and the other variables related in this study. Future researches also can focus on the differences between the income of farmers who joined in farmers' group and farmers who did not join in farmers' group.

COMPETING INTEREST

Authors have no competing interest to declare.

AUTHOR'S CONTRIBUTION

All authors contributed to this work. Imaniar Ilimi Pariasa participates in drafting the article, analysis data, interpretation of data, and also design the manuscript. Wen-Chi Huang, Syafrial, and Mangku Purnomo are participate in revising critically for important intellectual content and give final approval of the version to be submitted and any revised version.

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