

Tourism development strategies of Rammang-Rammang area as an ecotourism object

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Keywords

Economic Valuation, Rammang-Rammang Tourism Area.

Abstract

Tourism area of Rammang-rammang has multi benefits both in ecology and socio-economic aspects, but sometimes its management and exploitation have not been done optimally, especially in tourism aspect. This research aims to analyze ecotourism value of Rammang-rammang area. This Research was conducted in Rammang-rammang tourism area which is in karst area of Maros-Pangkep (KKMP) from July through September 2016. The research used survey method and questionnaires. The tourist samples were chosen purposively. To analyze the ecotourism value of Rammang-rammang area, Travel Cost Method was used, while the data were analyzed by determining the demand functions so from the demand functions, the willingness to pay, actual to pay and consumer's surplus could be acquired. Then the development strategy was done by SWOT analysis. The estimated economic value of the natural tourism, willingness to pay was or US\$5,427,314.14 per year, the actual to pay was US\$3,960,521.42 per year and the consumer's surplus was US\$1,466,792.72 per year or Rp.632.84,- per individual. Those values also showed opportunity cost which had to be charged by the societies if Rammang-rammang area's ecosystem was damaged and lost its tourism attraction, so the related party needs to increase the visits intensity by encouraging the tourist convenience and the promotion via internet or online.

Introduction

A tourism object in karst area of Maros-Pangkep (KKMP) which is visited by many tourists is Rammang-rammang. This area presents the natural exotics with the river stream among karst walls, karst forest garden, and also rural atmosphere among KKMP. This tourism object condition is based on karst ecosystem so we need to react natural and tourism potency which give very big ecotourism value.

Quality of Maros-Pangkep karst itself is the best quality in Indonesia and the second best in world after the karst owned by China. Because of the reason, karst has been being exploited to various mining needs and industrial. Therefore it is important to know the value of the existence of tourism object which is exist specially tourism area of Rammang-rammang.

Economic valuation is one of instrument which can be used to calculate monetarily the strategic value of the tourism area of Rammang-rammang to increase the society's and government's appreciation and awareness of goods and service produced by natural resources environment (Garrod & Willis, 1999). Therefore, this research is conducted for ecotourism valuation of tourism object of Rammang-rammang in Maros regency, South Sulawesi.

This research aims to analyze the value of ecotourism area of Rammang-rammang by application of travel cost method (TCM) and determine the strategies to develop its tourism.

Research Method

Location and Time of Research

This research was conducted in tourism area of Rammang-rammang in Maros regency, Province of South Sulawesi. This tourism area can represent the uniqueness of KKMP. This research was conducted from July to September 2016.

Kind of Research

This research type is survey which is direct research to the field by taking sample of respondent from population representation and use questionnaires as fundamental data intake (Singarimbun & Effendy, 2009).

Population and Sample

In determining number of sample, we used Slovinformula (Sevilla et al., 2007), according to organizer of tourism object of Rammang-Rammang, known that the amount of tourist is 1.817 people per month. Mathematically, we obtained 99.98. To add the variation of respondent we add the data so that totalize the respondent become 130 respondents

Data Collection

To moderate the sample's selection process, we used technique of proportionate stratified random sampling that is method of sample intake which is not conducted at randomly but based on consideration and intentionally as research aims (sampling area). Sample intake was generally conducted by interviewing each responder to estimate the total cost released during doing tourism activity.

Data Analysis

The main concept in this research was doing the economical assessment to natural resource giving benefit indirectly (intangible). Assessment was conducted with the approach of TCM. Methods of data analysis were descriptive, qualitative and quantitative analysis. Descriptive analysis is an analysis to describe the condition of tourism area of Rammang-rammang. The value of ecotourism area of Rammang-rammang was estimated by using TCM, covering transportation cost back and forth from home, during in tourism object until back to home and other cost during in tourism object (including documentation, consumption, parking, access ticket and others). To know the demand curve, we made the demand model representing relation between visit intensity per one thousand population of origin area (zone) of visitor with travel cost.

Ecotourism value of the Rammang-rammang area is determined by using TCM which is relied on an expense amount of cost purchased during conducting the tourism activity. As the operational steps in determining the demand model as opened by Dixon & Hufschmidth (1986), Hufschmidth et al (1987) and Widada (2004), the first is determining the visit per 1000 population from each origin area. By using population data in 2011 hence the visit of per 1000 population from tourist origin zone, can be obtained with the following formula:

$$Y_i = \frac{JK_{ti}}{N_i} \times 1000$$

where :

- Y_i : visit zone i per 1000 population
- JK_{ti} : visit (people/year) from zone i
- N_i : population of zone i

The second step is calculating the travel cost from each origin zone. Component of travel cost in this research is cumulative cost purchased by tourist back and forth of Rammang-rammang area. The travel cost is covering the transportation cost/ticket, accommodation cost, consumption cost, souvenir cost, appliance rent, documentation cost and other.

To determine the willingness to pay of the visitor conducted with the mathematical approach of integral function as opened by Markadya (1992) and Priyanto (2010) as the following:

$$U = \int_0^y f(x) dx$$

where :

- U : Willingness to pay
- $f(x)$: Demand function
- y : average of products consumed (average visit)

Mckenzie (1983) gave ceiling boundary from integral is goods or services amount consumed, while Darusman&Hardjanto (2001), gave ceiling boundary is average of the goods or services consumed. Turner et al (1994) expressed that total willingness to pay is total actual to pay plus consumer surplus. Consumer surplus is counted by calculating difference of willingness to pay with the purchasing for the travel cost.

Respondent Characteristics

Pursuant to result summarizing the responder based on origin area, tourism area of Rammang-rammang was visited by local tourist was 82% covering Maros, Pangkep, Makassar, Gowa, Barru, Takalar, Sinjai, Polman, Tanatoraja. Followed by domestic tourist was 13% covering Palu, Toli-Toli, Manado, Kendari, Buton, Banjarmasin, South Jakarta, Deliserdang, Jambi, Padang, Natuna, Belu and Merauke. Foreign tourist was 5% covering Rosepq; Austria, Seoul; South Korea, Amsterdam, Ede; Netherlands, Worms; Germany, Lyn Wood; Australia.

Pursuant to age showed the tourism area Rammang-rammang was visited tourist aged 15-25 years was 49% or almost of a half of tourists were at this age, 26-35 years was 22%, 36-45 years was 16%, 46-55 years was 6% and 55 years and up was 7%. Pursuant to level of education of the tourist, elementary education 6-9 years was 3%, 10-12 years or senior high school was 28%, 13-16 years that is college was 62%, 17-22 years that is post graduate was 7%. Pursuant to income level, exactly tourist mount the earnings less than Rp.1.499.000,- per month was 45%. Rp.1.500.000-2.999.000 per month was 18%, Rp.3.000.000-4.499.000 per month was 17%, Rp.4.500.000-7.499.000 per month was 14%, and then the last is Rp.7.500.000 and up per month was 6%. Pursuant to occupation, student was 35%, civil servant was 11%, officer or private sector was 18%, entrepreneur/business was 13%, army/police was 5%, and farmer was 2%, while others were 16%.

The Tourist Description

The tourist visited KKMP especially by tourism area of Rammang-rammang is so many because KKMP has the different tourism potency and uniqueness compared by separate object dissimilar exist in South Sulawesi, as for visit to KKMP can be seen at table 1. Pursuant to table 1, domestic and foreign tourist visit to KKMP was about 5-13% from domestic and foreign tourist visit South Sulawesi from 2011-2015. Pursuant to Statistic institution of the province of South Sulawesi 2015 about tourist in South Sulawesi, tourist to KKMP was the second most after tourist to Makassar City (68,5%) even more than tourist paying a visit to some preeminent tourism object in province of South Sulawesi, for example Tana Toraja (4,5%) and North Toraja (4,3%). Data at tables 1 also shows the tourist to KKMP shows the decrease in 2011 to 2015. The mentioned shows there was indication that tourist more tend to put more attention for visiting other dissimilar tourism objects in South Sulawesi. Related party must put the attention to tourism object of KKMP so that to become more knowledgeable and enthused to visit by tourist.

Tourism object which crowded to be visited by local, domestic and also foreign tourist is tourism area Rammang-Rammang. It can be seen pursuant to table 2; tourist paid to visit to area of Rammang-rammang shows the trend mounting in the year 2015-2016. This tourism area was most visited by foreign tourists. At table 3 shows foreign tourists paid a visit to area Rammang-rammang was 3,8%, while other tourism object in KKMP was only 0,1 - 2,5% of foreign tourist. The data shows of tourism area of Rammang-rammang was more enthused by foreign tourist compared by other dissimilar tourism objects in KKMP.

Visit /1000 Population base on Origin Zone.

The ecotourism value of Rammang-rammang area was determined through visitor characteristic influencing visit intensity pursuant to travel cost, population of visitor origin zone. Assess of visits intensity and travel costs, travel expense which are zonal category are visible at Table 4. As for origin zone can be known through information from result of respondent's interview cover 10 local tourists of city and regency, 13 regencies and towns of regional tourist and 6 town of foreign tourist and hereinafter grouped in to 16 origin zone of tourist. Table 4 also shows the visit intensity of each zone of tourist origin pursuant to population in every zone.

Ecotourism Valuation of Rammang-rammang Area

Result of regression represents the demand function of recreation product to travel cost, used as a reference to compile the demand curve to estimate the economic value of ecotourism. The estimation of Rammang-rammang area ecotourism values, we used the visit intensity (Y) and travel cost (X) by assuming other variables were fix, because travel cost can depict the willingness to pay of consumer,

representing cost which has to be sacrificed by consumers to get the nature recreation services. Result of regression, the influence of travel cost to visit we obtained,
 $Y = 0.3002 - 0,001787X$.

From the equation, we can see that relation between travel cost improvements with the amount of visit is negatively correlated. Consumer surplus in the demand curve picture is wide of area at the below of the demand curve.

The fourth step is estimation of ecotourism value of Rammang-rammang area. Calculation of ecotourism value of Rammang-rammang area was estimated from regression result of correlation of travel cost to visit. Hereinafter, the equation was inversed become:

$$X = 167.99 - 559.59 Y$$

Consumer surplus, actual to pay, and willingness to pay were calculated by summing squared area of under the curve by integral of demand function. Economic value calculation (the average of willingness to pay, actual to pay and consumer surplus) conducted by integral of equation of inversion result with the floor boundary when $Y = 0$ and ceiling boundary for average Y . Pursuant to calculation result, we obtained the economic value of tourism object of Rammang-rammang as at Table 5. At tables 5, knowable the value of willingness to pay, actual to pay in this case is travel cost and also consumer surplus.

Last step is by conducting SWOT analysis in strategy in developing the tourism area of Rammang-rammang.

Discussion and Conclusion

This research found the estimation ecotourism value (willingness to pay) of Rammang-rammang is Rp.70,473,674,052.12,- or US\$.5,427,314.14 per year with the value of consumer surplus is Rp.19,046,303,438.01,- or US\$.1,466,792.72 per year (Rp12,985/US\$1). the consumer surplus shows that the tourist still have the kindness to purchase value equals to value mentioned in conducting tourism activity in Rammang-rammang area.

Consumer surplus is the difference between satisfaction obtained by somebody in consuming a number of goods or services with the payment which has to be made to get the goods or services. This matter happens in tourism with the unique attractions (Klempener, 1996). At tourism with the unique attractions, when price goes up hence the visitor doesn't not descend quickly, because there is no other object dissimilar as substitution. This matter also happened in tourism area of Rammang-rammang or KKMP representing the single karst tourism object exists in province of South Sulawesi. Decrement of visit in tourism object with the unique attraction happened if the damage or degradation of the quality of tourism objects (Klempener, 1996).

As the matrix SWOT (Rangkuti F, 2005) tourism area of Rammangrammang can be summarized as follows:

Internal factors	STRENGTHS 1. Owning big ecotourism value 2. Having international level of tourism object 3. Tourism object which still be awaked	WEAKNESSES 1. It has not promoted intensively 2. Still identic with the small promotion 3. facilities which less be adequate
External Factors	SO Strategy 1. Conducting promotion which good intensively through media specially internet 2. Exploiting opportunity and excess owned as a sells for government and private sector 3. Exploiting of Firm of air transport to give information indirectly.	WO Strategy 1. Progressively in promotion to client to attract their belief 2. Taking care of safety and convenience for domestic and foreign tourist 3. Giving more services to tourist.
OPPORTUNITIES 1. It begins to be recognized by foreign tourist 2. Karst of tourism object owning separate uniqueness 3. Some events/activities which could conducive to the foreign tourist	ST Strategy 1. Conducting anticipation by giving best to all tourist 2. Giving information to tourist about motto and serious of local government in the field of tourism and informing its activity 3. Doing promotion to be able to extend the market compartment.	WT Strategy 1. Doing promotion and giving the information that local government, private sector, and society are already to give the safety and convenience to all tourist 2. Improving quantity and quality of the facilities which give tourist's convenience.
TREATHS 1. There will be more and more expanded tourism destination, 2. Lack of significant development in tourism area. 3. Negativity image which is non-stopped expand in external society.		

Table 1The matrix SWOT (Rangkuti F, 2005) tourism area of Rammangrammang

Pursuant to result of analyze the estimation value of ecotourism (willingness to pay) of Rammang-rammang area, application of TCM is Rp.70,473,674,052.12,- or US\$.5,427,314.14 per year with the value of consumer surplus is Rp.19,046,303,438.01,- or US\$.1,466,792.72 per year (Rp12,985/US\$1) or

equal to Rp.632.84,- per individual. The value shows opportunity cost or sacrificed value which must be paid by society if tourism area of Rammang-rammang damages of ecosystem and loses its tourism attraction.

Research Limitation and Direction for Further Research

This research suggests increasing its economic value so better tourism object management is needed in order to increase the tourist's convenience. The ecotourism value of Rammang-rammang tourism area by travel cost method that we obtain is expected to become information for various related parties especially local government in order to become a reference to determine the conservation policy and ecosystem sustainability of Rammang-rammang area and also to improve the promotion through various media particularly via internet so there will be more tourist interested to recognize and pay a visit to Rammang-rammang.

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Appendices

Table 2 Tourist that visit to KKMP and South Sulawesi

Month	Rammang-Rammang		
	Domestic	Foreign	Total
Sep-15	1,603.00	74.00	1,677.00
Oct-15	1,501.00	129.00	1,630.00
Nov-15	1,134.00	45.00	1,179.00
Dec-15	1,417.00	23.00	1,440.00
Jan-16	1,799.00	17.00	1,816.00
Feb-16	2,141.00	48.00	2,189.00
Mar-16	2,638.00	154.00	2,792.00
	12,233.00	490.00	12,723.00
	1,747.57	70.00	1,817.57

Source: Central Bureau of Statisticsin Province of South Sulawesi (2016)
National Park Bureau of BantimurungBulusaraung (2016), processed
Table 3 Tourist who visit to Rammang-rammang area

Year	Tourist to KKMP			Tourist to South Sulawesi			% KKMP's Tourist to South Sulawesi
	Domestic	Foreign	Total	Domestic	Foreign	Total	
2011	621,047	2,633	623,680	4,471,632	51,749	4,523,381	13.79
2012	562,779	2,174	564,953	4,871,966	64,601	4,936,567	11.44
2013	340,209	3,836	344,045	5,385,809	106,584	5,492,393	6.26
2014	384,548	4,570	389,118	5,920,528	151,763	6,072,291	6.41
2015	390,768	2,288	393,056	7,128,826	191,773	7,320,599	5.37
Mean			462,970			5,669,046	8.17

Source: Rammang-rammang tourism area manager (2016)

Tourism Object in KKMP	Domestic Tourist	Foreign Tourist	% foreign tourist to number of tourist
Bantimurung	329,733	590	0.18
Pattunuang	7,374	21	0.28
Leang-leang	32,691	837	2.50
Rammang-rammang	20,970	840	3.85

Table 4 Percentage Foreign Tourist at four tourism object in KKMP in 2015

Source: National Park Bureau of BantimurungBulusaraung(2016), Rammang-rammang tourism area manager (2016), processed

Zone	Origin	Estimated visit/year	population in each zone	Visit/1000 Population	Origin travel cost
1	Maros	391.35	319,002	1.23	98,666.45
2	Pangkep	167.72	305,737	0.55	98,676.24
3	Makassar	782.71	1,338,663	0.58	151,642.86
4	Gowa, Barru, Takalar	97.84	362,842	0.27	114,428.57
5	Bantaeng, Sinjai	27.95	202,789	0.14	247,250.00
6	Poimant, Ianatoraja	27.95	308,601	0.09	245,500.00
7	Palu, Sulteng; Toli-toli, sulteng, Manado, Sulut, Kendari, Sulteng, Buton, sulteng	83.86	300,797	0.28	1,050,666.67
8	Banjarmasin, Kalsel	13.98	625,481	0.02	780,000.00
9	South Jakarta	41.93	2,062,232	0.02	1,442,666.67
10	Deliserdang, Sumut; Jambi, Prov. Jambi; Padang, Sumbar; Natuna, Kep. Riau	69.88	806,213	0.09	1,100,500.00
11	Belu, NNT; Merauke, Papua	27.95	274,007	0.10	780,000.00
12	Roseppq, Austria	13.98	1,714,227	0.01	4,164,368.00
13	Seoul, South Korea	13.98	9,794,304	0.00	9,950,000.00
14	Amsterdam, Netherland; Ede, Netherlands;	41.93	1,625,967	0.03	16,823,769.00
15	Worms, Germany	13.98	1,670,952	0.01	20,514,800.00
16	Lyn Wood, Australia	1817.00	21,399,444	0.08	15,564,225.00

Table 5 Visit / 1000 Population and average of travel cost Origin Tourist's Zone

Source : primary and secondary data process, 2016

Note : * Number of population in 2011 based on data from Central Bureau of Statistics and City Population, <http://www.citypopulation.de>

Economic Value	Mean (Rp/1,000 population /year)	Population	Total Value (Rp/Year)
Willingness to Pay	2,341.57,-	30,096,658	70,473,674,052.12,-
Actual to Pay/Travel Cost	1,708.74,-	30,096,658	51,427,370,614.12,-
Consumer Surplus	632.84,-	30,096,658	19,046,303,438.01,-

Table 6 Ecotourism Value Rammang-rammang Area

Source: Primary data process, 2016