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Abstract: The aim of this study is to estimate the recreational value of Baba Aman Natural Park near Bojnord in Northeast Iran. The recreational value of Baba Aman Park has been analyzed using a contingent valuation method. For this purpose, 201 on-site questionnaires were administered between June and September of 2006. Visitor's willingness to pay (WTP) for Baba Aman recreational park has been estimated for future entrance fees associated with two scenarios including current conditions and proposed improvements of the recreational services in the park. Average WTP was estimated 1.5 and 2 times more than the current entrance fee, considering two scenarios. These amounts are insignificant when compared to the cost of improving the recreational services of the area. However, found that only 25% of visitors are willing to pay more money beyond the current entrance fee. Statistical analysis has revealed that the monthly income and level of education have significant effects on WTP amounts. Implications are discussed and conclusion drawn.

Key words: Contingent valuation, ecotourism, policy-making, recreational values

INTRODUCTION

Natural parks are a major source of ecotourism in arid and semi-arid regions, which are under threat by human impacts. There is an urgent need for preserving natural resources and landscape attractions that can be used to promote efficient sustainable recreational park management and conservation. Proper valuation is a critical requirement for the efficient management of natural resources and environmental preservation. Since benefits of recreational areas can be applied to enhance and preserve the environment and recreational services, ecotourism can be considered as a strategy to support conservation of natural and protected areas (Boo, 1990; Lindberg, 2001; Mc-Neely and Miller, 1984). These areas however are vulnerable to negative environmental impacts due to alteration of the ecological system, mismanagement, and the lack of a development and conservation plan, which often occur in developing countries (Baker, 1997; Obua and Harding, 1997). Moreover, the scarcity of natural resources tends to make the environment more susceptible to damaging tourism activities (Zhang *et al.*, 1999).

Understanding people's perception of and participation in park development and conservation is

essential to maintain a balance between tourism development and the environment and to generate useful information for appropriate planning and management of environmental resources (UNEP, 1998). Attitudes are important for explaining and predicting behavior of visitors through impact assessment. In this study people's participation in preserving and improvement of Baba Aman Park in northeastern Iran is evaluated. Funds for the management of this park are mainly obtained from the limited governmental budget. The other source of funds is entrance fees, which is believed to be under-priced at the present time. Many studies have shown that revenue from admission fees can be optimized if recreational parks were priced appropriately. While governmental budget allocation may be limited, revenues raised from entrance fees may contribute substantially to the maintenance and improvement of the recreational site.

Environmental economists have developed a variety of techniques to value non-market environmental services. Navrud (2000) discussed these valuation techniques based on revealed and stated individual preferences with respect to non-marketed goods. The Contingent Valuation Method (CVM) is an example of stated preference methods, which are most commonly used to gauge environmental and recreational value of natural parks. The

CVM relies on using a questionnaire that taps the willingness to pay (WTP) for a non-market resource, which is based on a survey of respondents using hypothetical questions. The CVM is non-market resource valuation, which is an applicable option for environmental and recreational valuation as it provides a basis for eliciting non-use values directly (Pearce and Moran, 1994). The CVM has been applied for the first time in the early 1960's to estimate the benefits of outdoor recreation in a backwoods area of Maine (Mitchell and Carson, 1989). This method also provides a platform for understanding interrelated socio-economic information on recreation planning and management policy based on public preferences.

Mustapha, (1993) utilized the dichotomous choice and open-ended CV formats to estimate the benefits of a lake recreation. Tegege, (1999) also applied the CVM to elicit people's valuation of environmental protection. He concluded that households in the study area are willing to contribute labor rather than cash. Moreover, education, age, gender and family size turned out to be factors affecting the willingness to pay in terms of labor. Moges, (1999) used CVM to estimate the willingness to pay for the Tana recreation site. He showed that income, family size and level of education are significant factors influencing the WTP of a household for the recreation site. In spite of the easy applicability of contingent valuation methodology, there are some problems and bias associated with the CVM (Mitchell and Carson, 1989; Bateman and Kerry-Turner, 1993; Hanley and Spash, 1993), which should be considered in questionnaire design and interpretation of its results.

The main objective of this research is to estimate the recreational value of Baba Aman Natural Park in Northeast Iran. In this study the CVM with the open-ended questionnaire format is applied to estimate WTP values. Moreover, factors that might affect the WTP of entrance fees at current and advanced conditions are investigated based on environmental and recreational improvement policy in the area. A reasonable estimate of the values of the area and its services can become the basis for initiating policy to protect and improve this recreational park. These estimates are used to help determine the appropriate entrance fee for the park. Since the growth of tourism in this park has been largely spontaneous rather than planned, the current relationship between people, resources and recreation in this park has yet to be optimal and provide the mutual benefits necessary for successful ecotourism.

MATERIALS AND METHODS

The study area and its features: The Baba Aman recreational park is located in the northeast of Bojnord city, between 57° and 26'E and 37° and 28'N, and covers

an area of 140 ha. The natural environment of Bojnord area including the landscape, valleys and mountainous area has enormous potential environmental and recreational capacities. This capacity of natural attractions provides excellent opportunity for tourist attractions and ecotourism industry development. This park provides good access for about 11 million travelers to Holly city of Mashhad city each year. It is located in mountainous areas with ancient and thick trees alongside Baba Aamn's famous spring that supplies soft boiled water from mountains and fills the gorgeous pools' park. There are 9 pools with a total floor space of 3,840 square meters. This water is used by local people for drinking, for landscape beauty and for agricultural utilization in adjacent rural areas. Rich with flora and fauna, the recreational area provides a refreshing view of the surrounding natural landscape. The streamflow and small waterfalls are famous picnic, camp and soaking spots for visitors, managed by the Bojnord Municipality. The entrance fee for the recreational park is 500 Tomans per family or a car entering the area (1,000 Tomans equal one US dollar based on the average exchange rate in 2006).

This park is also close to a religious site (Emamzade Esmael Shrine or Shah Esmael), which adds more luster to this recreational place. In addition, this area has a compound ecosystem with diverse sceneries and a mixture of forest, mountains, hills and water pools. Every Friday morning thousands of enthusiastic mountain climbers walk from Bojnord city to the northern side and the peak of the Bab Moosa Mountain at more than 1500 m. After resting at a top, they continue walking through a nice valley that is covered by different pasture plants and trees. They keep walking from east to Baba Aman Park and after hiking for two or three hours down a steep valley, they arrive at the park, and can enjoy the water of the spa, rest in the camping area there and use all the recreational facilities (Fig. 1). These facilities include a motel, a restaurant, a parking lot, a camping ground, a mosque, a gas station, a police station, an emergency site and public toilet. But these facilities are not enough to meet the growing demand, which shows the great potential of this place to become one of the greatest and best revival recreational parks in northern Khorasan Province, Iran.

The contingent valuation survey: A random survey of local adult visitors was conducted at the study site from June to September of 2006 using face-to-face interviews formats. The interviews took place in a variety of locations in the park. From a total number of 210 respondents, at the first stage of calculating the contingent valuation of recreational values of park, it was necessary to eliminate the invalid and protest responses from the analysis. This left us with a sample size of 201, which is reliable for statistical analysis (Loomis and Walsh,

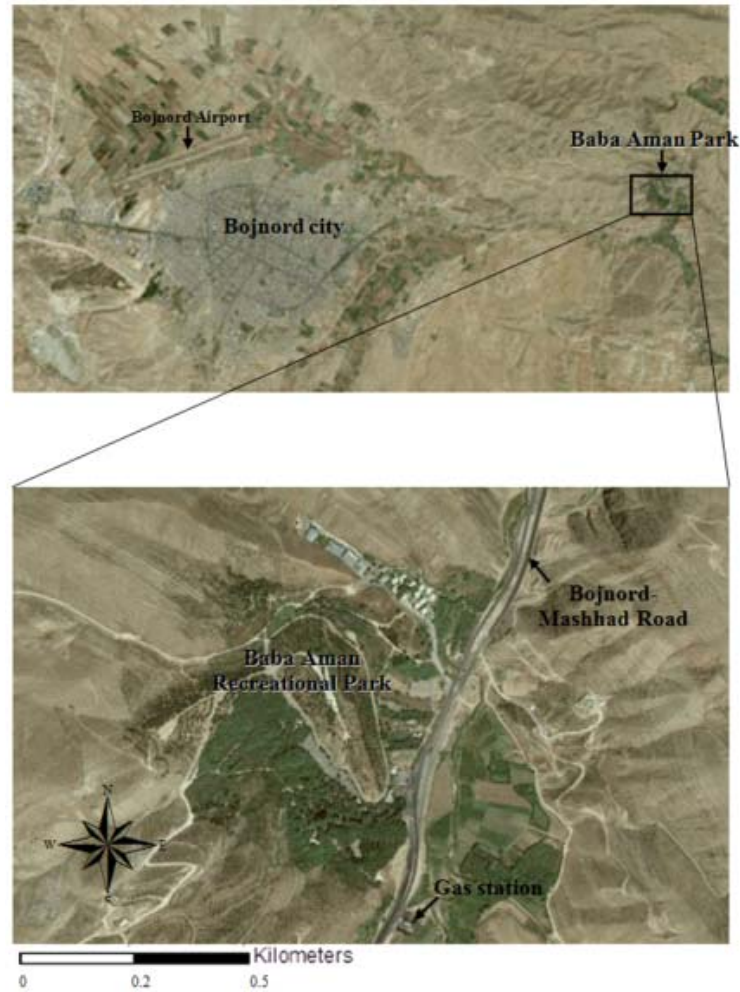


Fig. 1: Location of the Baba Aman recreational park near Bojnord City in Northern East of Iran

1997). The survey was first tested on 12 randomly selected individuals, was then peer reviewed to double check any misinterpretation of the questions, and their preference of payment amounts and the maximum amount of WTP. Respondents were asked for two different scenarios about their maximum WTP.

Scenario 1: The first scenario was defined as the current situation. The visitors were asked how much they would be willing to pay as maximum payment, considering current entrance fee of 500 Tomans.

Scenario 2: In the second scenario, they were asked how much they would pay for protecting and restoring the recreational park, in order to estimate their maximum willingness to pay and participate for preserving and developing the above recreational area. The second scenario was defined to reflect an improvement of recreational and facilities at the park in terms of availability of parking lots, dinning centers, temporary

accommodation areas and cleanliness of the environment with increased safety.

The first section of the survey provided an introduction to the current situation of recreational park and its impact on the environment and society. In the second section the questions including personal information, people perception and their willingness to pay were asked. The social and individual characteristics of tourists such as age, sex, educational level, job and etc. were analyzed. This information was used to test whether the WTP answers confirm our theoretical research questions. Moreover, regarding the rate of tourists' financial cooperation in park usage and management of the maximum WTP, the recreational value of park on an annual basis could be estimated. The contingent valuation model was used to estimate the visitors' maximum WTP for Baba Aman recreational park, which is defined as:

$$WTP = f(\text{Age, Duration of stay, Income, Level of education ...})$$

Some socio-economic variables such as monthly income, level of education or age were hypothesized to have an effect on WTP. Multiple regression analysis was used to extract adequate models on the relationship between socio-economic variables and visitors' willingness to pay for two different scenarios of entrance fee. Qualitative variables such as age or level of education were defined as nominal variable in regression analysis. Only two valuation scenarios were defined to prevent any confusion of respondents and increase the accuracy of the results. Accurately expanding the sample to the annual population of visitors could provide a basis to calculate recreational value of the site (Wei *et al.*, 2007). If the mean annual willingness to pay of visitors in the survey is multiplied by the number of all visitors in a year, then an idea of the recreational value of the site can be obtained. Since the site was not the primary destination for the majority of visitors who would go to the holy city of Mashhad, it was not practical to include travel cost in this research.

RESULTS AND DISCUSSION

Socio-economic characteristic of visitors: The socio-economic characteristics of respondents were collected and analyzed. From a total of 210 respondents, only 9 respondents were invalid and dropped from the analysis. Table 1 shows the demographic and socio-economic characteristics of the 201 respondents including 124 males (61%) and 77 female (39%). Over 50% of respondents represented households with four to five members. While, 32% of the sampled were single, and 68% were married. People aged 20-30 were the majority visitors, and 52% of them were under the age of 30, which shows youth as the largest group visiting this recreational site. Table 1 also shows that 53% of the respondents had high school education or less, while 18% had associate degree or some university education. In addition, 22% were university graduates, while about 7% had post graduate degrees. As can be seen in Table 1, 56 and 38% of the visitors stayed one day and less than one day, respectively. Regarding the geographical origins of the visitors, there was a fairly even distribution across the country, with the most coming from Khorasan Razavi (21%), followed by Fars (12%), Isfahan (11%), and Tehran (8%).

Willingness to pay for entrance fee: Table 2 shows the different levels of income for the visitors. Most respondents interviewed belonged to the low income category, with 41.3% earning less than 200 thousand Tomans a month and 37.8% earning 200-400 thousand Tomans, while only 20.9% earned above 400 thousand Tomans monthly. Figure 2 shows the variation of the maximum WTP for Scenario one and two based on monthly income categories. The data also show that the average maximum willingness to pay was 751.9 and

Table 1: Summary of socio-economic characteristics of respondents.

Characteristics	Frequency	(%)
Gender		
Male	124	61
Female	77	39
Marital status		
Single	64	32
Married	137	68
Age (years)		
Up to 20	38	18.9
20-30	67	33.3
30-40	54	26.9
Over 40	42	20.9
Level of education		
High school diploma or less	107	53
Associate degree and some university	36	18
University graduate	44	22
Post graduate	14	7
Duration of stay		
Less than 1 day	77	38
1 day	111	56
More than 1 day	13	6
Monthly income (Thousand Tomans)		
Less than 100	51	25.4
100-200	32	15.9
200-300	46	22.9
300-400	30	14.9
More than 400	42	20.9
Total respondents	201	100

Table 2: Weighted average WTP for status quo and advanced scenarios considering different categories of visitors' monthly income

Monthly income (Thousand Tomans)	Percentage of visitors	WTP 1	WTP 2
Less than 100	25.4	650.9	1156.8
100-200	15.9	718.7	1140.6
200-300	22.9	623.9	1080.4
300-400	14.9	816.6	1100.0
More than 400	20.9	051.9	1147.7

WTP1: WTP for scenario one; WTP2: WTP for scenario two

Table 3: Visitors' willingness to pay for more than current entrance fee

WTP1 (Tomans)	Frequency	(%)
500	149	74.1
500-1000	30	14.9
1000-5000	19	9.5
≥ 5000	3	1.5
Total	201	100

1147.7 Tomans for scenario one and two, respectively (Table 2). This was a weighted average based on the percentage of respondents in each category of payment. Data from CVM surveys represent respondents who evaluated two scenarios for a hypothetical market. As a result, taking into account a rough estimate of 100,000 visitors on an annual basis, a fee range from maximum WTP amounts offered would yield about 75,100\$ to 114,700\$ for scenario one and two, respectively (Table 2).

Visitors' willingness to pay for more than the current entrance fee based on scenario one is displayed in Table 3, in terms of frequency and percentage. The data show that the majority of the visitors (74%) were not willing to pay more than the current entrance fee. Table 4 shows the results from an inter-correlation analysis of all variables in this study. For scenario one, there was a

Table 4: Correlation matrix of socio-economic variables related with two scenarios of willingness to pay

Variable	Parameter	WTP2	Monthly WTP1	Marital income	Level of status	Education	Gender	Age (years)	Duration of stay
WTP2	Pearson Correlation Sig. (2-tailed)	1							
WTP1	Pearson Correlation Sig. (2-tailed)	0.094	1						
Monthly income	Pearson Correlation Sig. (2-tailed)	- 0.034	0.224 **	1					
Marital status	Pearson Correlation Sig. (2-tailed)	- 0.033	0.001	- 0.120	1				
Level of education	Pearson Correlation Sig. (2-tailed)	- 0.038	0.175 *	0.257 **	- 0.133	1			
Gender	Pearson Correlation Sig. (2-tailed)	- 0.083	- 0.013	- 0.238 **	0.208 **	- 0.009	1		
Age (years)	Pearson Correlation Sig. (2-tailed)	- 0.039	0.047	0.344 **	- 0.674 **	0.175 *	- 0.342**	1	
Duration of stay	Pearson Correlation Sig. (2-tailed)	- 0.014	- 0.072	0.166 *	- 0.132	0.161 *	- 0.123	0.278 **	1
		0.843	0.308	0.018	0.061	0.022	0.082	0.000	

** and *: indicate significance levels at 1 and 5%, respectively

Table 5: Regression models to estimate WTP1 based on correlated socio-economic variables

Model	Variable	B	S.E	t-value	Sig.	F	Sig.
1	(Constant)	541.991	542.860	0.998	0.319	2.67	0.023
	Gender	64.712	140.174	0.462	0.645		
	Age	1.760	9.015	0.195	0.845		
	Duration of stay	- 173.452	112.505	- 1.542	0.125		
	Monthly income	0.001	0.000	3.267	0.001		
	Marital status	44.847	187.228	0.240	0.811		
	(Constant)	752.679	198.699	3.788	0.000		
Duration of stay	- 174.862	108.239	- 1.616	0.108			
Monthly income	0.001	0.000	3.486	0.001			
3	(Constant)	483.518	108.71	04.448	0.000	10.561	0.001
	Monthly income	0.001	0.000	3.250	0.001		

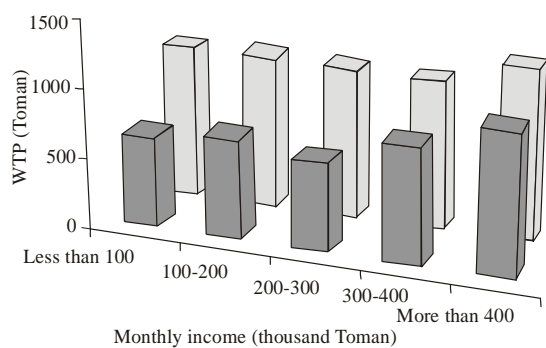


Fig. 2: Maximum WTP for Scenario one and two based on monthly income categories

statistically significant relationship between the maximum WTP values and some socio-economic factors, while the relationship between scenario two maximum WTP and other variables were insignificant. As Table 4 shows, the relationship between monthly income and WTP1 was significant at the 1% level. Also the correlation coefficient for the level of education and WTP1 is significant at the

5% level. However, the other correlations for WTP1 are not statistically significant. For WTP2, none of the correlations are statistically significant (Table 4).

To go beyond bivariate analysis, we used multiple regressions to estimate the effects of socio-economic factors as independent variables on WTP. In this section, only WTP1 is considered for multiple regression analysis, as none of the correlations are statistically significant for WTP2 (Table 4). The seven independent variables in the model included: monthly income, marital status, level of education, gender, age and duration of stay education (Table 5). For model 1, only monthly income had a statistically significant effect, and we excluded the level of education due to its high co-linearity with monthly income (Table 4). However, none of the other predictors in either Model 1 or 2 are statistically significant. Since only income had an effect, we present it as the lone predictor, which is the same as in the correlational analysis, in Model 3.

POLICY IMPLICATIONS AND CONCLUSION

Understanding public participation in recreational

enhancement in watersheds is an important for achieving community-based sustainable ecotourism (Singh and Knare, 1993; Ghanbarpour *et al.*, 2005). Ecotourism development should be based on a consideration of the natural features of a recreational area and the viewpoints of its visitors. However, if planning for recreational improvement does not involve community and visitors, then ecotourism development in the area will not succeed (Ziffer, 1989). In this study, visitors' willingness to pay has been analyzed for two scenarios of entrance fees for Baba Aman recreational park so the potential for improving the current situation can be established. Statistical analysis has revealed that among the socio-economic variables that were expected to affect the willingness to pay for the entrance fee, monthly income and level of education are the most significant variables.

The estimated WTPs shown in Table 2 can be used as a basis to determine the appropriate level of entrance fee for future plans by the managers. Tourism revenues can make a substantial contribution to enhancing the studied recreational site. However, this research shows that visitors demonstrated a lack of willingness for financial participation in the development and preservation cooperation of the site, irrespective of the very low current entrance fee. As is shown in Table 3, 74% of tourists agreed with paying only 500 Tomans as an entrance fee, while only about 25% of visitors are willing to pay more than the current entrance fee in scenario one. According to Table 1, about 20% of visitors' income was above 400 thousand Tomans, suggesting that low income was the reason for the low or average financial participation. This also points to the limitations of applying the contingent valuation method in developing countries where the general income level is low (Whittington, 1998). The current gap between the cost of protecting, restoring, and improving the area and the estimated willingness to pay create a dilemma for policy makers and recreational planners in the province.

The size of the revenue from recreational areas, which provides the means of improvement, depends largely on the attractions and facilities at the site. There are several methods policy makers could employ to protect, improve and restore the recreational park like Baba Aman area. One strategy is to develop facilities for vehicles, designing new parking lots, and creating suitable spaces for attracting tourists to Baba Aman recreational park. As the majority of tourists usually stay at a site with suitable utilities and available facilities, preparing facilities for visitors to stay overnight is also very important. Creating more artificial pools and developing artificial forests inside and in the surrounding area could be considered for attracting tourists. Moreover, social safety of the area could be improved as well, which is great concern of travelers. Presenting informational and educational brochures on the Baba Aman park facilities

and attractions will also be useful for increasing visitors' knowledge about the area. But the data show that people seemed unwilling to pay for these improvements.

This study proposes that entrance fee of the park should be revised and increased in a way that reflect the recreational values of the site and visitors' willingness to participate. Entrance fee for Baba Aman recreational park can be increased about 50%, considering the first scenario (Table 2). It is important that recreational services of the park should be appropriately valued to prevent any wrong planning implications. For example, undervaluation may lead to low revenues for park management and overuse of area, which causes more environmental degradation, whereas overvaluation may reduce the visiting rate and harm the ecotourism industry in the area. It can be concluded that estimation of entrance fee should be based on the accurate balance between demand and surplus of recreational services in the area. Since only less than 25% of visitors are willing to pay more than the current entrance fee based on the first scenario, the recreational site suffers from low financial participation from visitors. This implies that government funding is more important for park management and improvement, unless the second scenario is implemented in the near future. In this case, the entrance fee for Baba Aman recreational park can be increased about 100% (Table 2), considering the second scenario.

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