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**RECREATION- ECONOMIC VALUATION OF ENVIRONMENTAL RESOURCES
AND DETERMINING THE FACTORS AFFECTING WILLINGNESS TO PAY: A CASE
STUDY OF TANG BOSTANAK**

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ABSTRACT

With attention to ignored side role of environment, specifying this role and estimating it, will clear up the environment importance and its real role in national economy. Value of tourism and recreation is a part of direct values of environment ecosystem and are included: using the environment for recreation, subsistence leisure time and entertainment, hiking and aesthetic. In this research, recreation value of TANG BOSTANAK and interest rate to pay of visitors of this place, was measured and determined by using the conditional valuation. Sampling was made randomly among visitors of TANG BOSTANAK and in two periodical times, spring and summer of 1393. Number of samples were determined on the basis on the basis of average and variance of statistical population of 384 questionnaires. To measure the interest rate of visitors to pay, LOGIT model was used. And parameters of this model were estimated by using the maximum verisimilitude method. Results showed that, more than 80 percent of the verified people, were ready to pay some amount for recreation use of TANG BOSTANAK. Estimated results shows, income variables, number of annual visit, education status and environment valuation on visitors interest to pay for using from pleasant environment had positive effect. and also, variables of individual's age and proposed price, had negative relationship with the

people's interest to pay. Interest average to pay of visitors for recreation value of this park was 12854 RIALS for every visit. Annual interest to pay average of each family for every visit was achieved as 586168/8 RIALS.

JEL Classification: Q51, Q56, Q57

**Keywords: Conditional valuation, Interest rate of paying, LOGIT model, TANG
BOSTANAK**

INTRODUCTION

Functions valuation and non-market services of natural resources and environment, because of many reasons including: recognition and understanding of environment interests and ecological by humans, importance feedback of environment issues toward planners, creating the relationship between economic policies and incomes obtained from natural resources, verifying the role and importance of environment resources in welfare improvement of society individuals and stable development, adjustment and correction of national calculation set, just like national impure production and preventing the destruction and inappropriate exploitation of natural resources are important (ACHIM, 2000 and GU, 2001). Economic valuation is used as a tool for distinguishing between inefficient use of environmental goods and services and realizing the real value of these sources in decision-making process in environment management, which will lead to

good governance (KHODAVERDI ZADEH, 1387).

Economic valuation of natural resources and environment is consisted of two categories: use value and non-use value (MOLAEI, 1388 and PEARCE, 2001). Use value is accompanied with one product, but non-use value, increased the utility of individuals, however the person is not using the product. Non-use value or preservation value, includes: existence value, bequest value and option value. Existence value is applied to source intrinsic value and if the said source was not seen or used by individuals, however, people will value to its existence (TORAS, 2000). Bequest value or value of future generations is the utility of individual awareness in maintaining the natural resources for future generations (PEARCE, 2001). Option value is also an indicator from the individual preference degree for keeping the natural source for possible use of people in the future (LEE and HAN, 2003). therefore, existence value is defined as

interest to pay of society's members for protecting the natural resource. bequest value is defined as rate of interest to pay for protecting the source for the profit of future generation and option value is equal to interest rate to pay for protecting the source for possible uses in the future (LEE and HAN, 2003). In recent decades, environment quality as a product was under attention in economic theories, in such a way that, economics are sure, realization of growth and stable development is in pledge of protection from environment. functions valuation and non-market services of environment for many reasons are important, for example: recognition and understanding of environmental and ecological profits by humans, delivering the country's environmental issues to decision makers and programmers, providing the relationship between economic policies and natural incomes, verifying the role and importance of environment resources in protection of human welfare and stable development, adjustment and correction of national calculation set (VAZ, 1998). Natural environment has a lot of economic profits, some as tangible and others as intangible are in hand of humans. These profits has been classified to direct values, indirect values, option value and existence value. Direct

value is related to direct use of resources which is about jungle, in addition to business and timber & wood business, included some cases like: gum, resins, raw sap or latex and foods such as walnut and hazelnut. In addition, potential incomes of recreation and tourism are also a part of direct value. Indirect value is related to the profits which people have got them in indirect and or it is related as a result of primary activities of available resources. ecological and environment services, such as ability of jungle in absorption of air carbon, prevention of soil erosion, flood control, weather adjustment and life diversity are the categories of indirect values. Option value includes: all direct and indirect values, suitable for research in the future, or related value of goods and services in the future, such as future exploration related to agricultural and medical use of plants and ecological new resources. Existence value includes: intrinsic value of a source such as jungle and a value which people are considering it, only for its existence and environmental activity (even if they did not see or use it). Therefore, recreation and tourism value is a part of direct values of parks and jungles ecosystem which is consisted of jungle and park for recreation,

subsistence of leisure time and entertainment, hiking and aesthetic.

Valuing methods on environment, always was under attention of experts as a key discussion in environmental economy and in the same level, was criticized by the wide range of environment fans to moralists. Therefore before this discussion, available general views must be briefly mentioned.

As it is well known in the literature of the environmental economy, the presence of externalities and in many cases, legal problems of environmental issues as well as a large number of the acting beneficiaries in this field and consequently the increase in bargain costs, the need for environmental policy and intervention of government with legal and economic instrument is necessary. And this requirement, finally will highly depend on resources on pricing and valuation of environmental products and services. While people in general goods market have, approximately clear information in connection with basis of goods valuation and selecting them. And goods are usually visible, price, features and its quality is known and quantity is very clear.

But, environmental products, often are in lack of price information. And there are lot of doubts regarding price and importance and

even their quantity rate. Therefore, in practice, consumers and environmental goods policy makers should reach to a kind of compromise about exchanging what to what things. Knowing this stage is only possible by paying attention to economic value of environmental assets.

Valuation on environment, according to some of the moralists is a meaningless and indecent issue. While, some believe in inherent right existence for animals or living creatures. Some moralist such as HUNT, believe that all the world creatures, live or dead, with soul or without soul have inherent right. From this prospective, valuation with human focus is completely rejected. Stating an example is clearing up the importance of this view, if we assume that, any type of human economic and industrial activity has environmental effect, then from the prospect of a pure ecological ethics fan, any kind of activity is incorrect and should not be done. Therefore, it seems most of the current economy activities from the prospect of philosophers, who are believing in natural morals, this work is against ethics. Therefore, if society health and social life is defined and interpreted properly, major part of human activities will be prohibited and cancelled.

Resorts and resorts were in discussions as one of the main centers for subsistence of

public leisure time and every year, part of public expenses are spent on creating or maintaining such areas. Recreational places have acceptance capacity for a lot of visitors, because of different resort attractions. scarcity of such resources from one side, and from other side, lack of financial resources for restoration and creation of suitable recreation areas, will move the natural resources management to valuate these resources and use public's cooperation for their maintenance and restoration (AMIRNEJAD, 1384).

Economic experts, started their efforts to access to recreation criteria of the people. These efforts will clear up the needs for future resorts and value of present criteria. Putting such methods in action, along with prediction of potential power of resorts, specifies the creation of a recreation center in future based on the economy. And in addition to that, with comparing the entertainment systems, their necessity grade will be determined (FATAHI, 1392).

Research methodology:

In this study, to estimate the willingness to pay of the individuals to protect the jungle, the double-bounded dichotomous choice was used. Binary selection technique was used for the first time by CARSON and STENBERG (1990). This method requires to select a more

proposal compare to the primary proposal. this more proposal, in fact is second proposed price to the answer of yea or no and or depended on replier's reaction in initial proposal (VENKTACHELM, 2003).

One of the most common methods and assessment questionnaire used by consumers in this research, is contingent valuation method. In this method, a list of questions will be handed over to the interviewees which includes: different qualities of a product or environment, or in other words, different levels for the quality of above product will be considered.

In contingent valuation method, we can ask the individuals about their desired goods. these additional questions, will give us the perspective and people's behavior pattern in verifying their proposed payment rate. One of the benefits and advantages of contingent valuation method is that, it can be used for a wide range of researches, particularly in places, where information is incomplete (KHORSHID DOUST, 1383). Therefore, in this survey, among all mentioned methods in research theory, the contingent valuation method was used.

The study area:

Fars province with an area of over 122608 square kilometers, is allocated 8/1 % of the country's total area to itself. And on the

aspect of wideness, Fars is the state of the country. Jungle area of Fars state is about 1/25 million hectares, and because of extent and improper distribution of existing forests, relative lack of green space in state level is evident. Resort region of LOST HEAVEN with area of 15 thousand and 324 acres is situated in north-west of Fars state and 120 km away from Shiraz city in KAMFIROUZ section, a function of MARV DASHT city. LOST HEAVEN is a very beautiful valley, and is one of the most spectacular resorts and natural attractions of Fars state. suitable plant cover, jungle-like hills of oak and peanut trees, lot of water flowing down from fountain en route of valley and existence of plants and trees en route of this creek, caused that, LOST HEAVEN or TANG BOSTANAK possess a special beauty. Geographic situation of national natural effect in TANG BOSTANAK in tourism network complex in north and north west of state and ability in road connection with historical monuments of TAKHT JAMSHID, NAGHSH ROSTAM and PASARGAD from one side and natural views of MARGON water fall and TANG BARAGH from other

side, has lot of impact in attracting countless tourists. in present survey, entertainment valuation of LOST HEAVEN region was considered (consisted of using the region for tourism, leisure time and entertainment, hiking, mountain climbing in area and aesthetic).

RESEARCH FINDINGS

Verifying the attitudes and thought desires regarding protection importance from natural resources:

In table (1), attitudes and intellectual tendencies in statistical sample regarding protection importance from natural resources was reported.

Table (1), shows the attitude and thinking tendencies of responders regarding the protection of natural resources. as you can see, most of the responders are aware of the importance of environmental protection. This means that nearly 80 percent of the people, believe that government development programs that have caused damage to the environment , should not be followed.

Table (2), expresses the valuation of visitors from available facilities and equipment in TANG BOSTANAK.

Table (1), attitudes and intellectual tendencies in statistical sample regarding protection importance from natural resources:

Range response Issue	Completely agree	Agree	Apathetic	Against	Strongly disagree
The valueless of the environment and entertainment	6 (1/5)	7 (1/8)	7 (1/8)	75 (19/5)	289 (75/2)

Non-implementation of governmental development programs in case of environmental destruction	160 (41/6)	135 (35/1)	30 (7/8)	45 (11/7)	14 (3/6)
The need to protect the environment and entertainment places to be used for the present generation and future generations	322 (83/8)	49 (12/7)	4 (1/04)	5 (1/3)	4 (1/04)
Environmental protection, even in case of income decrease and employment for local people, exploiter of natural resources	125 (32/5)	138 (35/9)	22 (5/7)	82 (21/3)	17 (4/4)
Pay to protect the natural resources, even it can't be used	65 (16/9)	137 (35/6)	24 (6/2)	95 (24/7)	63 (16/4)

* Source: research findings

Table (2): valuation of visitors from available facilities and equipment in TANG BOSTANAK

Description	Great	Good	Average	Weak	Very weak
Cleaning conditions of lavatory services	18 (4/6%)	79 (20/5%)	102 (26/5%)	108 (28/1%)	77 (20/05%)
Number of lavatories	12 (3/1%)	120 (31/2%)	100 (26/04%)	122 (31/7%)	30 (7/8%)
The green space condition	40 (10/4%)	254 (66/1%)	51 (13/2%)	28 (7/2%)	11 (2/8%)
The access to drinking water situation	16 (4/1%)	76 (19/7%)	56 (14/5%)	149 (38/8%)	87 (22/6%)
The amenities situation	20 (5/2%)	43 (11/1%)	107 (27/8%)	146 (38/02%)	68 (17/7%)
The resorts and benches situation	43 (11/1%)	229 (59/6%)	54 (14/06%)	34 (8/8%)	24 (6/2%)
The road condition of resort	130 (33/8%)	150 (39/06%)	50 (13/02%)	40 (10/4%)	14 (3/6%)
The promenade Care's situation	103 (26/%)	138 (35/9%)	82 (21/3%)	37 (9/6%)	24 (6/2%)
Parking Situation	115 (29/9%)	127 (33/07%)	104 (27/08%)	32 (8/3%)	6 (1/5%)

* Source: research findings

As you can see in table (2), visitors are not satisfied with the cleaning conditions of lavatory services and number of lavatories, parking space, amenities and drinking water situation. Fixing these problems, will increase the number of the tourists and as a result, will boom the economy of the region. In the section of contingent valuation method, to determine pay willingness, the two-dimensional dual questionnaire was used. In the said questionnaire, proposed prices were declared and people are asked to

respond with yes or no. in this period, proposed price has been announced as lower, middle and higher. These prices are respectively 15000, 20000 and 30000 RIALS. The proposed prices on the basis of pre-test and using open questionnaire in multiple places, where the main questionnaire is completed in that place was achieved. order of the questions are like this: in the beginning, the median price will be asked, if the answer is positive, higher price

will be proposed, if the answer is negative, lower proposed price will be presented.

Among 384 responders, 132 persons did not accept the first proposal, and were not interested to pay 20000 RIALS, but 252 samples accepted the proposal. For those responders, who rejected the first proposal, the second question was declare as; are they ready to pay 15000 RIALS to use the recreation place? 74 persons did not accept the second proposal, while 58 persons accepted it. That group of responders, who did not accept the first proposal, were placed in the higher proposal group, whether they are ready to pay 30000 RIALS? 153 responders did not accept the third proposal. And 99 fellows accepted the proposal. The table (9-3), was completed on the basis of information, mentioned in the questionnaire. This table shows the situation of willingness to pay of the individuals regarding the proposed prices.

CONCLUSION

As for majority part of services and environmental applications, no price is determined or received, value of these services did not functioned and is not entered in the national calculations. And finally will not be paid attention in planning. Ignoring these services, will lead to gradual destruction of environment. On this basis, we

tried to determine the recreation value of TANG BOSTANAK, in this survey. Used method to estimate this value is contingent valuation method. The necessary information was collected through 384 dual selection questionnaires. Proposed prices to protect the jungle of related ARSANJAN were 2000, 15000, 30000 RIALS. To measure the people`s willingness to pay and determining the effective factors on this pay interest, the LOGIT regression model was used. Parameters of this model were estimated by using the likelihood maximum method. On the basis of research findings, more than 80 percent of sample individuals were ready to pay some amount to use the under study location. Average rate of willingness to pay on monthly basis of every family was approximately 12854 RIALS. Result of this survey, indicates that environment is important. In this research, family visitors from TANG BOSTANAK, were ready to pay some amount as entrance for the said place. By using the table (9-3), we gain this result that more than 80 percent of visitors have positive WTP. Estimation results show that age variables, income, number of annual visit in the level of 1 percent, rate of education variable in the level of 5 percent and valuation variable of environment in the level of 10 percent are significant. Survey results

show that, beauty and quality from the prospect of visitors are very important and effective. On the other side, according to the less satisfaction of interviewed individuals from shortage of welfare facilities in this area, regarding reconstruction and providing the welfare facilities in this area, should be tried.

people's attitudes regarding the protection importance from the environment, is one more effective factor on pay willingness regarding the use from TANG BOSTANAK. In other words, as much as people are aware about protection importance of environment, their pay willingness in using the natural resources such as under studied place will be increased. Therefore, action should be taken for training and protection importance from natural resources among different groups.

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