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Determining the Economic Value of Historical Monuments of Bisotun Using the Method of Individuals' Willingness to Pay (WTP)

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Abstract: The ancient and historic site of Bisotun is one of the most reliable archaeological works of the world, which was registered in the UNESCO World Heritage List in 2006. This research studies the economic value (including recreational value and existential value) of Bisotun Historical Complex using the Logit and Probit valuation models. The statistical population of the study was visitors to the historical monuments of Bisotun in 2013. The results of the survey showed that a large number of visitors are willing to pay a fee as an entrance to this complex and have fun in the area around the historic monuments. In addition, the results showed that income and education variables in both methods of Logit and Probit are one of the most important factors affecting the WTP rate of visitors to visit the historical complex of Bisotun. The average WTP calculated for the economic value of Bisotun's historical monuments based on Logit and Probit models is estimated to be 47659.2 Rials and 50149 Rials per visit, respectively. Moreover, according to the visitors' statistics of Bistoun historical monuments, which the Cultural Heritage Department of Kermanshah Province has announced it for 250,000 people for 2012, and assuming that the average annual number is the same, the total annual value of the complex of historical monuments using the Logit and Probit models are estimated at 11914800000 and 12537250000 Rls, respectively.

Keywords: Economic value, valuation models, willingness to pay, Logit model, Probit model
JEL Classification: Z19, D52, Q51, C61

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1- Introduction

In recent years, natural resource economists have valued and evaluated the role of natural effects on providing human well-being and found a significant role in valuing the benefits of non-consumable natural effects. While most economists' attention is devoted to the value of natural effects, the non-consumable value of these effects is increasingly evaluated and recognized every day. Several researches have been done on the value of non-expendable tourism sites. This reflects a growing research agenda that seeks to expand our understanding of the relationship between the economic system and the tourist sites, and highlights the importance of tourism sites and deep knowledge of the various ways that benefit humankind. The reasons for valuing tourism places include understanding the interests and services of tourism places by humans, providing environmental issues related to tourism places of the country to decision makers and planners, providing a link between economic policies and tourism revenues, measuring the role and importance of tourism places, adjusting and modifying national calculation collection like GDP[1] and preventing the destruction of tourism sites (Amirnejad et al., 2007).

The values of a tourism location are divided into consumable and non-consumable ones. By definition, consumer values are derived from the actual use and utilization of a tourism site (for example, a forest park), which includes direct consumption value, such as wood and timber revenues from a forest park and indirect consumption value are like recreational activities, environmental services and tourism. Non-consumable (defensive) values include existential value, heritage value, and value of choice. Existential value is the intrinsic value of a tourism place or value that people only believe in the existence of a tourism place, even if they never see or use it. The heritage value or value of future generations is the desirability of people's awareness of maintaining the property of a tourism site, such as forest park for future generations, and the value of choice is an indicator of the degree of preference for saving people to preserve the tourist's place against the potential use of people in the future. In other words, existential value is defined as community members' WTP[2] to protect tourism places, heritage value as WTP to protect tourism places for the benefit of future generations, and value of choice as WTP to protect tourism places for possible consuming opportunities and activities in future. The recreation value, which is one of the values used by the tourist sites, includes the use of tourist places for recreation, leisure, entertainment, walking and aesthetics (Behrooj et al., 2015).

The ancient and historic site of Bisotun is located 5 km long and 3 km wide in the east of Kermanshah province and is one of the most reputable archaeological works of the world, which was registered in the list of outstanding international monuments in UNESCO in 2006. Considering the special importance of the historical monument of Bisotun domestically and internationally, understanding the benefits and services of these works, providing environmental issues related to decision-makers and planners, providing links between economic policies and tourism revenues of monuments, evaluating the role and importance of

1- Gross Domestic Product

2- Willingness to Pay

tourism these monuments will be important by using economic methods and models. Therefore, in this paper, it has been tried to address this issue using Logit and Probit models and using WTP method.

2- Literature Review

a) Foreign Researches

Adams et al., (2008) estimated people's WTP to protect Morro do Diabo State Park and Atlantic rain forest in Brazil by using CV[1]. In this survey, the individuals' willingness to pay for the park and Atlantic forests was $ 211, 3548 and $ 300, 463, 0, respectively.

Ojeda et al., (2008) estimated non-market value of the Yaqui River. They conducted a contingent valuation method in 40 counties, and the average willingness to pay was reported by 73 followers per month. In this study, the relationship between people's willingness to pay with key variables such as the amount of initial proposal, income level, education, and the number of children were examined.

Baral et al., (2008) investigated the recreational value of Annapurna Protected Area in Nepal by using the contingent valuation approach. In this study, the average of individuals' willingness to pay was reported as 69.2 and 74.3 US dollars, respectively.

Buckley et al., (2009) examined the recreational demand of Ireland's highland and rangeland areas by using contingent valuation method. The results showed that the visitors' willingness to pay to improve the infrastructure of the rangeland areas, is 22.22 pounds and for high rangelands, 9.08 pounds.

Nandagiri (2015) estimated the economic value of Pilikula Lake by using WTP method. According to the results, swimming and water jets are among the facilities that can increase the willingness to pay if visitors benefit from them.

b) Iranian Researches

Hashemzadeh et al., (2011) determined the recreational value of Noor Forest Park of Mazandaran by using CV method and dual selection questionnaire. For this purpose, Logit's analytical model was used and the indicators of this model were estimated and evaluated based on the maximum likelihood method. The results indicated that the average of visitors and users' willingness to pay for this forest park was estimated at 3875 Rials per visit.

Monfared (2010) estimated the recreational value of Alangdarreh forest park by using CV method. In this research, the average of visitors' WTP was 2413 Rial for per visit and the annual recreational value of each hectare of Alangdarreh forest park was 14194570 Rials.

Naji et al., (2011) estimated the recreational value of Qaem Forest Par of Kerman by using CV method. In order to attain this goal and estimate people's WTP, Logit model was used based on maximum likelihood method. Data were collected using 115 questionnaires from the visitors of the park. The results showed that the average willingness to pay per person to visit the park was 2157 Rials and the willingness to pay per household per year was 178191.33 Rials. The results also showed that a one percent increase in the proposed price would reduce the probability of accepting it by 40.5%, and the income variable would have the greatest effect on acceptance of the proposed amount.

Amirnejad & Ajdari (2011) estimated the recreational value of tourism region of

1- Contingent Valuation

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Fars Lost Paradise by using CV in three forms of Logit, linear Probit, and homogeneous two-stage methods. The required number of samples was calculated based on simple random sampling method. Data were analyzed using 183 questionnaires. The results indicated that the homogeneous two-step method, which can differentiate between the factors affecting the acceptance of willingness to pay and the factors affecting it, generally estimates less WTP than the other two methods. In addition, no significant difference was observed in the results of Logit and linear Probit methods. The average WTP for the area using Logit and Probit was calculated to be 9987.5 Rials and 9773.8 Rials, respectively and based on a two-stage homogeneous method; it was 2493 Rials per visitor.

Abedi et al., (2011) did a research on recreational value of Namakabrood complex by using CV. The required information was collected using 140 questionnaires during 2009-2010. The results showed that 64.29% of the people under study are willing to pay a fee for recreational use of the complex. The average visitors' WTP for the recreational value of the complex was estimated at 28,819 Rials per visit, and the annual recreational value of the complex for each family was 111,021,7 Rials.

Khaksar et al., (2012) estimated visitors' WTP from Historic Burnt City Complex 6563 Rials for per visit and 1292 million Rials for its annual recreational value by using CV and dual selection questionnaire.

Shabanzadeh et al., (2015) estimated visitors' WTP for Garden Flower of Isfahan, by using CV method. According to the results, the average of people's WTP for recreational use of Flower Garden was 4752.49 Rials for per person.

Rigchiyan (2016) estimated economic-tourism value of historical mosques of Naqshe Jahan of Isfahan by using CV method as 8341.39 Rials.

Limayi et al., (2014) estimated the average of people's WTP for visit Forest Park of Masooleh in the North of Iran as 12500 Rials for per visit by using TCM[1].

3- Theoretical Framework

Contingent valuation method (CV) is used to determine the conservation value and recreational value of tourist sites. Generally, this method is used as a standard and flexible tool for measuring non-consumable values and non-market value of environmental resources. This method attempts to determine individuals' WTP under certain hypothetical market scenarios. In other words, the CV method attempts to find out how respondents are reluctant to pay under certain hypothetical market scenarios.

Generally, to estimate the recreational value of these places, both TC and CV are used. The TC method is based on data collection through interviews and questionnaires, and the demand for recreational sites is based on the number of visits per year and other variables such as types of travel expenses, visitor income, and socioeconomic characteristics.

In order to determine the model for WTP measurement, it is assumed that the individual accepts the proposed amount as a special tax for the protection value and the proposed amount as the entry price for the recreational value of a tourist destination based on maximizing its

1- Travel Cost Method

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utility under the following conditions or rejects it in another way:

$U(1,Y-A;S)+\varepsilon_1 \geq U(0,Y;S)+\varepsilon_0$ (1)

U is the indirect utility that one obtains. Y and A, respectively, individual's income and proposed amount, and S, is the other socioeconomic characteristics influenced by individual taste (Amirnejad and Rafiee, 2012). ε_1 and ε_0 are random variables with a mean of 0, which are distributed equally and independently.

The desirability difference (UΔ) can be described as 2:

$\Delta U=U(1,Y-A;S)-U(0,Y;S)+(\varepsilon_1-\varepsilon_0)$ (2)

A dual questionnaire in the CV review has a dual choice dependent variable that requires a qualitative selection model. Usually, Logit and Probit models are used for qualitative selection methods. Therefore, both Logit and Probit models are used in this research.

The probability that a person accepts uone of the proposals (A) is expressed in terms of the Logit model as Equation (3):

$p_r=F_\eta(\Delta U)=1/1+\exp(-\Delta U)=$ (3)
$1/1+\exp\{-(\alpha-\beta A+\gamma Y+\theta S)\}$

F_η (ΔU) is a cumulative distribution function with a standard logistic difference and it includes some of the socioeconomic variables in this study. β, γ and θ are estimated coefficients that are expected to be β≤0, γ and θ are greater than zero (Amirenejad & Rafiei, 2012).

There are three ways to calculate WTP: The first method is the average WTP, which is used to calculate the expected WTP value by numerically integrating within the zero to infinite range. The second method is the average total WTP used to calculate the expected value of WTP by numerically integrating into the negative infinity to positive infinite range. The third method, called the average WTP part, is used to calculate the expected value of WTP by numerical integration in the range of zero to the maximum bid (A). Among these three methods, the third method is better because it maintains consistency and limitations with theory, statistical efficiency, and aggregation capability. Therefore, in this study, the average WTP part was used (Amirnejad & Rafiei, 2012).

The Logit model parameters are estimated using the maximum likelihood method, which is the most common technique for estimating Logit model. Then, the expected WTP value is calculated, by numerical integration in the range from zero to the highest bid (A) as Equation 4:

$$E(WTP)= \int_0^{MaxA} F_\eta(\Delta U)dA$$
$$\int_0^{MaxA} \left(\frac{1}{1+\exp\{-(\alpha^{\bullet}+\beta A)\}}\right)dA \quad (4)$$

E (WTP) is the expected value of WTP and α is the width of the adjusted source, added by the socioeconomic term including the width from the original source (α) α[$\dot{\theta}$=(α+ γy+S)]

Logit models may be estiamted in logarithmic or linear functions. In this study, the linear Logit model is used because the linear form is easier to calculate the average WTP. For statistical analysis of variables, mathematical calculations and estimation of Logit model parameters, SPSS and Eviews software are used.

To measure the WTP of individuals, a two-dimensional selection questionnaire is used to examine the CV method. In this way, respondents choose only one proposal among a number of preset proposals.

The protective value questionnaire consists of four sections: the first part covers the socioeconomic status of individuals, which searches for age,

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gender, occupation, level of education, place of residence, number of households and income of respondents. In the second part, the questions are designed to measure respondents' awareness of the conservation value of the tourism site. These questions are evaluated by offering five completely agreeable, agreeable, indifferent, opposed, and totally opposed options. In the third part of the questionnaire, respondents will be asked about their information in the brochure provided to them. In this brochure, the highlighted features of the tourist destination, the statistics and information required, such as the location and area of the region, and some issues and problems that the tourist destination facing with them will be expressed.

This brochure will help respondents answer the questions more easily. The fourth part of the questionnaire includes questions about the WTP of individuals for the conservation value of the desired tourist destination. Before starting the interview in this section, several important points, including much thinking and reflection in answering the questions, focusing and emphasizing on the desired tourist destination and not the other environmental issues, their limited income, etc., were mentioned to the respondents in order to express the real answer to them. With WTP suggested fees, assuming A, B and C Rials, respondents are asked about their maximum WTP. This will contribute to further analyses to classify impacts.

The recreational value questionnaire consists of two parts: the first part, like the protective value questionnaire, includes the socioeconomic status of the visitors. The second part of the questionnaire is about questions about the amount of visitors' WTP, in this section three proposed prices D, E and F Rials are presented in three questions related to each other. The proposed bid price for conservation value and recreational value has been selected based on the pre-test using the open questionnaire.

For researchers, choosing a financial method to pay for a CV is important. This option shows the willingness to pay for respondents. A payment instrument may include entrance fee, sales tax, electronic invoices, license fees, operating licenses, or specific funds. To measure the conservation value of tourist places, special taxes are selected, such as educational and cultural taxes (which are legislated by the government). In addition, in order to determine the recreational value, the entrance price, which is the best rational choice and as a real means of payment for visitors to tourist destinations, has been selected (Hashemnejad et al., 2011).

Respondents will be able to respond positively or negatively or not to respond in the face of the proposed price as a tax on tourism to protect tourist places and input prices for recreational value provided monthly. The reason for that is recorded for each answer. People who have a protest response to pay a fee to protect the tourist sites are also recorded.

The first WTP question in the protective value questionnaire will be as follows: Would you like to pay B per cent of your monthly income as an educational cultural tax to protect the desired tourist destination? If the answer to this question is negative, a lower offer (C Rials) is submitted and if the answer is yes, a higher bid (A Rial) is questioned. In addition, in the first question related to the WTP of the recreational value questionnaire, the mid-price offer (E-

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Rials) is questioned in this way whether this tourist destination has provided you with an opportunity to work and relax or not. Are you willing to pay E Rials for using this park as your entrance fee for each of your members? In the case of a negative answer, the lower proposed price (Fri) is questioned and, in the event of a positive answer, the higher bidder (D Rials) will be asked.

4- Research Method

In this study, two-dimensional dual choice questionnaire was used to measure WTP. The recreational value questionnaire consists of two parts: the first part consists of 21 questions that cover the socioeconomic status of individuals, so that they are researching the age, gender, occupation, educational level, place of residence, number of households and income of respondents. The second part of the questionnaire consists of 8 questions, which include questions about people's WTP for the economic and recreational value of the historical monuments of Bisotun and its surroundings. In total, this questionnaire has 29 questions. Before the interview began, several points were mentioned, such as more reflection on answering questions, focusing and emphasizing the region, the limited amount of income were reminded to respondents in helping them respond to the actual answer. Proposed a sum for historical monuments was 4,000, 5,000, and 7,000 Tomans, and it was 1,000, 1500 and 2,000 Tomans for parks and spaces around the monuments presented as three dependent questions and asked the respondents about their largest WTP. Three proposed prices for recreational value were selected using the open questionnaire.

The first question about WTP was asked about in the recreational value questionnaire for the historical monuments with the average bid of 5000 Tomans. It was argued whether the historical monuments of Bisotun, in addition to the historiography and cultural sciences, provided an opportunity for your travel and rest. Do you want to pay 5000 Tomans as an entrance fee to visit these monuments? If the respondent had a negative answer to this question, the proposal would be lower than 3,000 Tomans, and if it were yes, the proposal would be higher than 7,000 Tomans and the first question related to WTP was asked for a recreational value questionnaire for the park and the surrounding historical monuments with an average bid price of 1500 Tomans. It was argued whether the park and the surroundings of these monuments provided moments of fun and joy for you and your family. Are you willing to pay 1500 Tomans for each use of this space? If the respondent had a negative answer to this question, the proposal would be lower than 1000 Tomans, and if the answer were yes, the proposal would be higher than 2000 Tomans.

In this research, simple random sampling method was used to estimate the number of samples. The sample size was based on the mean and variance of the statistical population (visitors of the historical monuments) using Cochran method and completed by 30 pre-questionnaires. Finally, 238 questionnaires were completed by visitors of Bisotun Historical Monuments in 2013.

Proposed Models in this Research

In order to determine a model to measure WTP, it is assumed that one accepts or rejects the proposed bid as an

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entry fee for recreational value of historical monuments of Bisotoun and its surrounding park and space based on most utility.

Dual questionnaire in the study of CV has a dependent variable with dual option that needs a selective qualitative model. Logit and Probit models are used for qualitative methods. The used model in this study is as equation 1:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \quad (1)$$

Y is a dependent variable and it shows visitors' WTP. If an individual is willing to pay a proposed fee, Y will be equal one, and if one is not willing to pay, Y will be zero. Moreover, x_1 shows the proposed fee, x_2 individual's income, x_3 education, x_4 the distance between place of residence and Bisotoun, and x_5 is the amount of ones' studied time.

The probability (Pi) that a person accepts one of the proposals is expressed in equation 2 based on Logit or Probit regression model:

$$P_i = F_\eta(\Delta U) = \frac{1}{1+exp\{(-\Delta U)\}} = \frac{1}{1+exp\{-(\propto -\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \theta s)\}} \quad (2)$$

Probit model factors are estimated by using maximum likelihood method, as the most common technique for model estimation. Thus, the expected value of WTP is calculated by numerical integration in the range from zero to the highest bid as equation (3):

$$E(WTP) = \int_0^{MaxX_1} F_\eta(\Delta U) = \int_0^{MaxX_1} \left(\frac{1}{1+exp\{-(\propto^* + \beta_1 X_1)\}}\right) dX_1 \quad (3)$$

$$\propto^* = (\propto + \beta_2 + \beta_3 + \beta_4)$$

E (WTP) is the expected value of WTP and α* is the modified width from source, α *= (α + β2 + β3 + β4), which adds the socioeconomic section to the width of the original source (α).

5- Research Findings

The Characteristics of the Questionnaire Respondents

a. Socio-Economic Features

The questions in this section in the questionnaire include the place of residence (province, town, and city), age, gender, and educational level, number of households, monthly average income, and average monthly income of your family. A summary of these features, while calculating their mean and standard deviation, is presented in Table 1.

Table1. Demographics of Bisotun Historical Monuments in 2013

Variables	Mean	SD	Lowest	Highest
Family size	3.7	2.76	1	12
Respondents' age	36.83	9.5	18	83
Years of schooling	14.38	2.96	5	22
Respondent's monthly income	15220220 Rials	18095690 Rials	700000 Rials	120000000 Rials
Household's monthly income	99999600 Rials	11080510 Rials	3000000 Rials	250000000 Rials

According to table1, the average of family size is 3.7 persons, the average of respondents' age is 36.83 years, the average of schooling year is 14.38, and the average of respondents' monthly income is 15220220.

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b. Occupational Features

The question of this section was answered in the questionnaire related to the job, according to which the occupational characteristics of visitors from the historical monuments of Bisotun are as follows:

Table2. Distribution of visitors based on occupation

Occupation	Government's employee	Retired	Self-employed	Expert	Unemployed	Other
Number	58	16	79	37	16	32
Percentage	24.36	6.72	33.19	15.54	6.72	13.44

Based on the results of Table 2, 24.36% of the respondents were government employees, 33.19% were self-employed, 15.55% experts, 13.44% retired and unemployed.

b. Educational Level

In this section, the educational level of respondents was examined. Based on the results of the questionnaire, the level of visitors' literacy is shown in Table 3.

Table3. Educational level

Educational level	Master and higher	Bachelor	Associate	Diploma and lower	Illiterate
Number	43	79	67	46	3

According to table3, 51.25 percent of respondents were bachelor and higher, 28.15% associate, and 20.58% were diploma and lower. In the WTP section of visitors for the economic value of the historical monuments of Bisotun, 151 people did not accept the first proposal and did not have a willingness to pay 50,000 Rials for each member of their families as entrance fees for visiting the monuments and 143 people accepted 50,000 Rials.

When a lower proposal was submitted (40,000 Rials), 123 people did not accept the second offer and stated that they were not willing to pay 40,000 Rials, while 28 accepted the proposal lower than 40,000 Rials.

Those respondents (143) who accepted the first offer (50,000 rials) were placed in the higher bidding group, are they willing to pay the entrance fee of 70000 Rials for visiting the historical monuments of Bisotun? 68 respondents rejected the third offer and 75 accepted the proposal. Of the 28 respondents who accepted 40,000 Rials, 5 of them expressed their maximum WTP to 45,000 Rials. Of the 68 respondents who accepted the 50,000 Rials, they did not accept the 70,000 Rials offer, with 15 of them expressing their maximum WTP to 60,000 Rials. Of the 75 respondents who accepted the 70,000 Rials, 52 of them had their maximum WTP up to 70000 Rials, 13 of them had their maximum WTP up to 75,000 Rials, 6 of them had their maximum WTP up to 90000 Rials and 4 to 100,000 Rials.

Nevertheless, in the WTP section of the visitors for the economic value of the recreational area around the historical monuments, 126 people refused to accept the first offer and wished to pay 15,000 Rials for each member of their family as an entrance fee for rest and recreation in the park and 168 ones did not accept 15000 Rials.

When the lower offer was proposed (10,000 Rials), 76 did not accept the

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second offer and stated that they were not willing to pay 10,000 Rials, while 50 of them accepted lower than 10,000 Rials. Those respondents (168 people) who accepted the first offer (15000 Rials) were placed in the higher bidding group whether they are willing to pay an entrance fee of 20,000 Rials for rest and recreation in the park and the surrounding area of historical monuments. 62 respondents did not accept the third offer and 106 accepted this proposal. Of the 50 respondents who accepted the 10,000 Rials, three of them expressed their maximum WTP to 12,000 Rials. Of the 62 respondents who accepted the 15,000 Rials offer, they did not accept the 20000 Rials proposal, 6 of them raised their maximum WTP to 18,000 Rials. Of the 106 respondents who accepted the 20,000 Rials, 75 of them had their maximum WTP up to 20000 Rials, 26 of them had their maximum WTP up to 25000 Rials, and 5 of them expressed their maximum WTP to 30,000 Rials. The analysis of the statements of respondents' willingness to pay provided the opportunity to examine expectations in any economic theory. In addition, an opportunity to examine the validity of the questionnaire revealed that the questions fully corresponded with the respondents.

The Results of Logit Model

a. The Results of Logit Model for Bisotun Historical Monument

The results of estimating Logit model for the historical monuments of Bisotun are shown in Table 4:

Table4.The results of estimating Logit model for the historical monuments of Bisotun

Variables	Coefficients	t-value	Sig
Proposal fee	-0.0000951	-2.8571	0.004
Income	0.000000158	3.05	0.002
Education	0.0020096	1.44	0.1
Study	0.005352	1.01	0.3
Distance	-0.000125	-0.74	0.4
Log Likelihood= -399.57 McFadden= 0.35R^2			

Based on the results of Logit model, the proposed price and income variables at 99% level and the education variable at 90% had significant effects on the acceptance or rejection of the proposed amount by the visitors. In addition, the marks obtained for these variables are expected. Accordingly, the proposed price variable has a negative sign and the income and education variables are marked with a positive sign, which means that with the increase of the proposed amount, the probability of accepting the amount (the answer is yes to the proposed amount in the questionnaire) reduces, and by decreasing the amount, the probability of accepting the amount increases. In the case of income and education variables, with the increase in income level and education level, the likelihood of accepting the visitors' proposed amount increases, and with their decrease, the probability of accepting the amount decreases. However, the distance and study variables were not significant, although they were marked as expected. The greater the likelihood of accepting the proposed amount, the more the distance between the visitors' place of residence and the higher attendance level of the visitors are, as far as their impact is concerned.

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Table5. Results of Logit model for the park and the surrounding area of historical monuments

Variables	Coefficients	t-value	Sig
Proposed fee	-0.000725	-4.12	0.000
Income	0.000000127	1.88	0.05
Education	0.07386	3.5776	0.0003
Study	0.0079	0.9738	0.330
Distance	0.0000998	0.3857	0.6
Log Likelihood= -423.0213 R^2 =McFadden = 0.55			

b. The Results of Logit Model for the Park and Surrounding Area of Bisotun Historical Monument

Based on the results obtained from Logit model, the proposed price variables at 99%, the income variable at 95%, and the education variable at 90%, had a significant effect on the acceptance or non-acceptance of the proposed amount by the visitors. In addition, the marks obtained for these variables are expected. Based on the results obtained from this model, the proposed price variable has a negative mark and income and education variables have a positive mark, which means that by increasing the proposed amount, the probability of accepting the amount (yes, in the questionnaire) decreases and by reducing the probability of admission amount increases. In the case of income and education variables, with the increase in income level and education level, the probability of accepting the proposed amount of visitors increases, and with their decrease, the probability of accepting the amount decreases. Regardless of the distance and study variables, although they had the expected mark, they were not significant. However, the more the distance between the place of residence of visitors is greater than the historical monuments and the level of study visitors, the greater the likelihood of accepting the proposed amount increases.

Table6. Estimates of Probit model for historical monuments

Variables	Coefficients	t-value	Sig
Proposed price	-0.0000882	-5.18	0.0000
Income	0.000000085	3.14	0.0016
Study	0.006799	1.43	0.15
Distance	-0.000136	-0.85	0.3
Log Likelihood = -410.08 R^2 = McFadden = 0.35			

The Results of Probit Model

a. The Results of Probit Model for Bisotun Historical Monument

According to the results obtained from Probit model, the proposed price and earnings variables at 99% level and the study variable at 85% had a significant effect on the acceptance or non-acceptance of the proposed amount by historic visitors. In addition, the marks obtained for these variables are expected. The distance variable was not expected and was not significant.

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Table7. Results of Probit model for the park and the surrounding area of historical monuments of Bisotun

Variables	Coefficients	t-value	Sig
Proposed price	-0.000444	-4.1286	0.0000
Income	0.0000000542	1.96	0.04
Education	0.046983	3.73	0.0002
Study	0.004689	0.93	0.35
Distance	0.0000715	0.44	0.6
Likelihood = Log -423.53 McFadden = R^2 0.55			

b. The Results of Probit Model for the park and Surrounding Area of Historical Monument of Bisotun

According to the results of Probit model, the proposed price and education variables at 99% level and the income variable at 95% had significant effects on the acceptance or non-acceptance of the proposed amount by the visitors. In addition, the marks obtained for these variables are expected. Like the Logit model, based on the results obtained from this model, the proposed price variable has a negative sign and income and education variables have a positive sign, which means that by increasing the proposed amount, the probability of accepting the amount (yes, in the questionnaire) decreases and with decrease amount, the probability of accepting the amount increases. In the case of income and education variables, with the increase in income level and education level, the likelihood of accepting the proposed amount from the visitors increases, and with their reduction, the probability of accepting the amount decreases. Regarding the distance and study variables, however, they were marked but not significant.

Estimation of the Expected WTP Value

a. The Estimation of the Expected WTP Value for Historical Monuments of Bisotun by Using Logit Model

The average expected WTP of the approximate value of the economic value of the historical monuments, after estimating the parameters of the Logit model using the maximum likelihood method, is calculated by numerical integration in the range of zero to the highest bid as below.

$$wtp = \int_0^{10000} \frac{dx}{1 + e^{-(0.025323158 + 0.0000951x)}} = 3912.61 \text{ Tomans} \quad (1)$$

According to equation (1), the average WTP for visiting historical monuments of Bisotun was 39121 Rials for each visitor.

b. The Estimation of the Expected WTP Value for Historical Monuments of Bisotun by Using Probit Model

The average WTP expected value representing the economic value of the historical monuments of Bisotun, after estimating the Probit model parameters using the maximum likelihood method, is calculated by numerical integration in the range of zero to the highest bidder.

$$wtp = \int_0^{10000} \frac{dx}{1 + e^{-(0.0066630852 + 0.0000882x)}} = 3947.15 \text{ Tomans} \quad (2)$$

According to equation (2), the average WTP for visiting the historical monuments was 39471.5 Rials for each visitor.

c. The Estimation of the Expected WTP Value for the Park and Surrounding Area of the Historical Monuments of Bisotun by Using Logit Model

The average WTP expected value, which represents the recreational value of the park and the space around the

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historical monuments, is calculated by numerical integration in the range of zero to the highest bidder after estimating the parameters of Logit model using the maximum likelihood method:

$$wtp = \int_0^{3000} \frac{dx}{1 + e^{-(0.081881927 + 0.000725x)}} = 853.31 \text{ Tomans} \quad (3)$$

According to equation (3), the average WTP for visiting historical monuments of Bisotun was 8533.1 Rials per visitor.

d. The Estimation of the Expected WTP Value for the Park and Surrounding Area of the Historical Monuments of Bisotun by Using Probit Model

The average WTP expected value representing the recreational value of the park and the space around the historical monuments, after estimating Probit model parameters using the maximum likelihood method, is calculated by numerical integration in the range of zero to the highest bid as follows:

$$wtp = \int_0^{3000} \frac{dx}{1 + e^{-(0.0517435542 + 0.000444x)}} = 1067.75 \text{ Tomans} \quad (4)$$

According to equation (4), the average WTP for the use of the park and the surrounding area of historical monuments was 10677.5 Rials for each visitor.

Calculating the Total Annual Value of the Historical Monuments of Bisotun

To calculate the total value of the historical monuments of Bisotun, the expected WTP from the previous sections should be multiplied by the total number of visitors to the historical collection of Bisotun, which results in the annual value of the works being calculated. According to a report from the Cultural Heritage Bureau of Kermanshah Province, the number of visitors in 2012 was 250,000. If we assume this number as the average number of visitors to the ancient monuments of Bisotun, then the annual value of the Bisotun historical monuments using the Logit and Probit models can be calculated as follows:

a. The Value of Historical Monuments of Bisotun

Logit: 39126.1*250000= 9781525000 Rials
Probit: 39471.5*25000=9867875000 Rials

b. The Value of the Park and the Surrounding Area of the Monuments

Logit: 8533.1*25000= 2133275000 Rial
Probit: 10677.5*25000= 2669375000 Rials

c. The Total Value of the Historical Monuments of Bisotun (Including the Monument Itself and its Surrounding Environment and the Park)

Recreational value of the park and its surrounding environment + the value of historical monuments of Bisotun = the annual value of the total historical monuments

Logit: 2133275000 + 9781525000 = 11914800000 Rials
Probit: 2669375000 +9867875000 = 12537250000 Rials

6- Conclusion and Discussion

In this study, a two-dimensional dual-choice questionnaire was used to measure the WTP of the visitors in the CV survey to assess the historical monuments of Bisotun. The questionnaire consists of two parts: the first part contains the socioeconomic status of the individuals. As for the occupation, educational level, place of residence, number of family members, income, and many other characteristics of the respondents were asked. The second part of the questions relates to the amount of willingness to pay visitors. In this section, three proposed prices of 40000, 50000 and 70000 Rials were presented as three related questions.

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In the WTP section of the visitors for the economic value of the historical monuments of Bisotun, 151 people did not accept the first proposal and were reluctant to pay 50,000 Rials for each member of their family as entrance fee for visiting the works and 143 samples accepted 50,000 Rials.

When a lower offer was proposed (40,000 Rials), 123 people did not accept the second offer and stated that they were not willing to pay 40,000 Rials, while 28 people accepted the offer. Those respondents (143) who accepted the first offer (50,000 Rials) were placed in the higher bidding group, are they willing to pay the entrance fee of 70000 Rials for visiting the historical monuments of Bisotun? 68 respondents rejected the third proposal and 75 accepted it. Of the 28 respondents who accepted 40,000 Rials, 5 of them expressed their maximum WTP to 45,000 Rials. Of the 68 respondents who accepted the 50,000 Rials, they did not accept the 70,000 Rials offer, with 15 of them expressing their maximum WTP to 60,000 Rials. Of the 75 respondents who approved the 70,000 Rials, 52 of them had their maximum WTP up to 70000 Rials, 13 of them had their maximum WTP up to 75,000 Rials, 6 of them had their maximum WTP up to 90000 Rials and 4 to 100,000 Rials.

However, in the WTP section of the visitors for the economic value of the recreational area around the historical monuments, 126 people refused to accept the first offer and wished to pay 15,000 Rials for each family member as the entrance fee for rest and recreation in the park and 168 people accepted 15,000 Rials.

When the proposal was submitted lower (10,000 Rials), 76 did not accept the second offer and stated that they were not willing to pay 10000 Rials, while 50 people down the offer More than 10000 Rials accepted. Those respondents (168 people) who accepted the first offer (15000 Rials) were placed in the higher bidding group whether they are willing to pay an entrance fee of 20,000 Rials for rest and recreation in the park and the surrounding area around the historic monuments. 62 respondents did not accept the third proposal and 106 accepted this proposal. Of the 50 respondents who accepted the 10,000 Rials, three of them expressed their maximum WTP to 12,000 Rials. Of the 62 respondents who accepted the 15,000 Rials offer, they did not accept the 20000 Rials proposal, 6 of them said their maximum WTP was up to 18,000 Rials. Of the 106 respondents who approved the 20,000 Rials, 75 of them had their maximum WTP up to 20000 Rials, 26 of them had their maximum WTP up to 25000 Rials, and 5 of them expressed their maximum WTP to 30,000 Rials.

The average WTP calculated for the economic value of the Bisotun Historical Monument, based on Logit and Probit models, was estimated to be 47659.2 Rials and 50149 Rials, respectively. According to the visitors' statistics, Bisotun historical monuments, which the Cultural Heritage Department of Kermanshah province has announced it for 250,000 people for 2012, and assuming that the average annual number is the same, the total annual value of the historical monument of Bisotun using Logit models and Probit are estimated at 11914800000 and 12537250000 Rials, respectively.

The results indicate that a large number of visitors are willing to pay a fee as an entrance to this complex and to have fun in the area around the historic

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monuments. Considering this point, the importance and value of this complex for protection and restoration and prevention of its destruction over time has become more visible and can serve as a framework for policy implementation from the Cultural Heritage and Environment Organizations in the future.

The results also showed that income and education variables in both Logit and Probit methods are one of the most important factors affecting the WTP rate of visitors to visit the historical complex. Finally, according to research findings, the following practical suggestions are presented:

- Due to the visitors' willingness to pay a fee as an entrance to visit a complex of historical and recreational activities in the surrounding area, as well as the historical, cultural, social and economic significance of these works, it is recommended that policy makers adopt consistent and stable policies. To protect, rebuild, and prevent destruction of works over time, put it on the agenda.

- Considering that, the tourism industry is one of the economic sources and employment creation and that one of the important aspects of historical monuments is its tourism aspect, it is recommended that the relative advantage of Bisotun Historical Monuments be used optimally in order to attract domestic and foreign travelers.

- Policy makers are advised to plan for the development of the infrastructure of the perimeter of historical monuments and tourism facilities such as road safety and transportation, accommodation facilities, health services, etc.

- Training the importance of preserving historical and archaeological monuments using different methods among different groups of society

- Given the historical, cultural, social and economic values of the historical monuments of Bisotun, it is suggested that projects, along with their justification studies, be defined for the conservation, reconstruction and development of the surrounding tourist infrastructure.

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