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Review

Assessing the Preservation of Parks and Natural Protected Areas: A Review of Contingent Valuation Studies

George Halkos [1,*], Aikaterini Leonti [2] and Eleni Sardianou [2]

[1] Laboratory of Operations Research, Department of Economics, University of Thessaly, 28hs Octovriou 78, 38333 Volos, Greece

[2] Graduate Program of Sustainable Development, Department of Home Economics and Ecology, School of Environment, Geography and Applied Economics, Harokopio University, El. Venizelou 70, 17671 Athens, Greece; aleonti@hua.gr (A.L.); esardianou@hua.gr (E.S.)

* Correspondence: halkos@econ.uth.gr

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Abstract: The existence of parks is particularly important and offers many benefits both to the environment and to humans. Parks are recreational spaces, which contribute to the improvement of the microclimate, reduce atmospheric pollution and protect biodiversity. Their importance for the urban environment is even greater because they offer pure oxygen to the city and people feel close to nature in them. The aim of this study is to review studies which took place globally as well as in Greece, relying on the Contingent Valuation Method (CVM) for parks. The reason that this method is used is the valuation of non-market goods and services through the development of a hypothetical market. Additionally, a distinction is made among previous empirical studies depending on the nature of the parks and the country where the survey was conducted, while the disadvantages that must be considered from the use of Contingent Valuation Method are mentioned. According to the findings of the literature review, studies using Contingent Valuation in Greece, particularly in the case of urban parks, are limited. As far as we know, the valuation of existing urban parks has not yet been studied, so this could be a field for further research. The economic valuation of parks in a country like Greece, which suffered with the financial crisis, can lead to conclusions about the value that citizens attribute to parks and the identification of possible protest responses.

Keywords: CVM; WTP; urban parks; natural protected areas

1. Introduction

Parks contribute to the improvement of microclimates through their coolness and low temperature, which impacts the adjacent structured environment [1]. It is worth mentioning, in this context, the study findings on the entertainment services of green spaces [2,3]. People visit parks in order to relax, to get close to nature, to escape from the daily routine, to spend time with family and friends. As such, intangible human needs are met. Moreover, the benefits to people's health must not be omitted [4]. Parks strengthen the physical and mental health of visitors through the activities they do, such as walking, sports and picnics, hereby reducing stress and enhancing spiritual well-being. The urbanization phenomenon further enhances the importance of parks as well as their existence, especially in an urban environment.

The value that people ascribe to the environment is valued through certain methods. The methods of economic environmental assessment depend on the revealed and stated preferences of people, and they are categorized accordingly, as shown in Chart 1 [5]. The most widespread methods that have

been implemented are: Hedonic pricing [6–9], travel cost (TCM) [10–15], contingent valuation [16–27] and choice modeling [28–34].

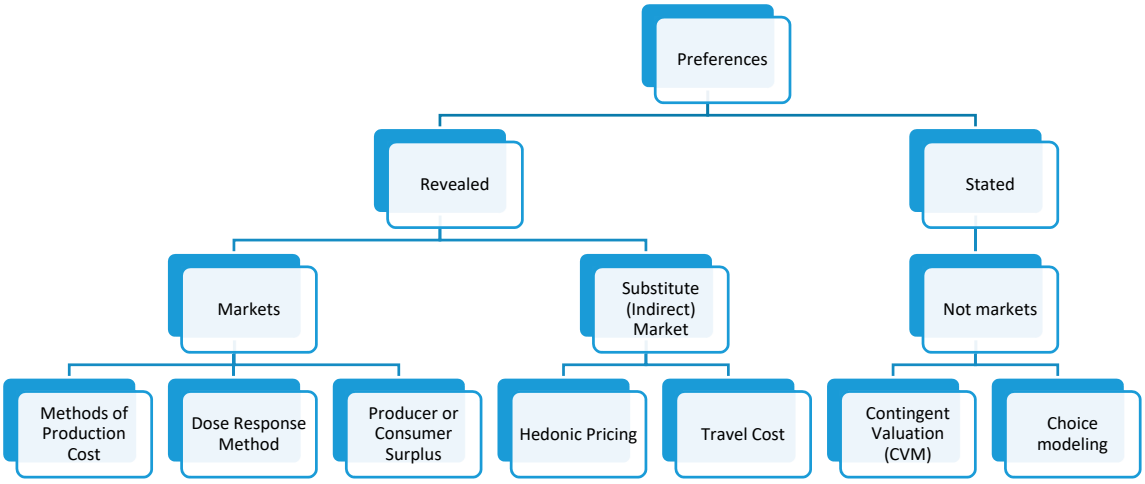

Chart 1. Economic valuation methods of the environment [5].

The contingent valuation method has been used for parks and protected areas in many previous empirical surveys. In this way, people's assessment of these spaces was estimated. The visitors stated their preference for using parks and willingness to pay for them, or their willingness to allow the loss or damage of these goods and the services they offer and to accept compensation.

It is worth mentioning the fact that the economic valuation of parks also has an economic dimension. Policymakers can administrate parks from the visitors' perspective, based on the reasons for their visits. The strategy and the funds that will be given for the conservation, improvement or creation of urban parks are determined, and the sustainability of cities is ensured [35].

Based on the above, it is important to determine the value of parks in countries such as Greece, which has been plagued by the financial crisis. The present paper presents a large amount of empirical surveys which have been carried out internationally using the Contingent Valuation Method (CVM). Summarizing previous empirical studies will help to identify, in future research, areas that need further research and compare factors that influence individuals' willingness to pay (hereafter WTP) for parks. The following research questions have arisen in our effort:

- RQ1: What studies have been conducted on parks using the CVM?
- RQ2: What is the economic value of parks in countries that have been plagued by the economic crisis, such as Greece?
- RQ3: What disadvantages should be taken into account when performing a CVM study?

Due to the plethora of researches involving the CVM on parks and protected areas, we start by classifying parks according to the country they are located in as well as their nature. The structure is the following. Section 2 presents the methodology and empirical studies for urban parks and green spaces, forest parks and natural areas, marine parks, wetlands, protected areas and animal parks. All the discussed studies, throughout the different sections, have used the CVM as an analytical method for policymaking. In Section 3 the results of previous empirical studies are presented, and in Section 4 there is a discussion about the results. Finally, in the last section some conclusions and essential points of the paper are mentioned.

2. Methodology

2.1. Data Sources and Processing

The Systematic Literature Review (SLR) was applied in the present review paper [36]. First of all, we determined our research questions. We defined the inclusion and exclusion criteria for the selection of previous studies. We searched for relevant literature, selected the researches we would use and analyzed their results.

Several databases (Scopus-Elsevier, Science Direct -Elsevier, Google Scholar) were used in order to find studies related to the Contingent Valuation Method (CVM), willingness to pay (WTP), urban parks and natural protected areas. Based on our inclusion criteria, 125 studies were selected, 85 of which were empirical.

The following are the criteria for the inclusion of previous studies in our analysis: (1) researches that used primary data; (2) applied the CVM; (3) were studies of urban parks; (4) were studies of natural protected areas; (5) were published between 1996 and 2020; (6) were conducted in as many different countries as possible in order to compare their results; (7) analyzed primary data to identify factors affecting the willingness to pay using the most widespread models (Ordinary Least Square, Logit, Double-bounded, Double-hurdle).

On the contrary, we decided to exclude: (1) repeated articles due to the use of multiple databases; (2) articles that used the CVM but did not study urban parks or natural protected areas; (3) studies that did not use primary data; (4) repeated studies for a specific country/park/protected area.

2.2. Description of CVM Studies

2.2.1. CVM Studies for Urban Parks and Green Spaces

As mentioned above, we selected 85 empirical studies for urban parks and protected areas. Before proceeding with the presentation of the research, we consider it appropriate to mention the following definition:

"Urban green spaces" are considered as "urban spaces covered by vegetation of any kind. This includes: Smaller green space features (such as street trees and roadside vegetation), green spaces not available for public access or recreational use (such as green roofs and facades, or green space on private grounds) and larger green spaces that provide various social and recreational functions (such as parks, playgrounds or greenways)" [37].

Bowman et al. [38] used transactional analysis, hedonic pricing and CVM in order to examine the willingness of residents in Iowa, USA, to pay for ensuring additional open space in their neighborhoods. The value of urban forests in the US state of Georgia was assessed through the imposition of an entrance ticket by Majumdar et al. [39]. The limitation of climate change through the adjustment of a scenario which will lead to a 5% expansion in urban forests was estimated in the city of Atlanta, in the US state of Georgia [40]. In this case study, the aspects concerning climate change and the sources of information about it, as well as the perceptions of the residents about the characteristics of the forests and the benefits they receive from them were estimated.

Remarkable are the studies by Brandli et al. [41] and Da Silva et al. [42], in Brazil. In the first case, the possibility of park improvement in Passo Fundo was considered through the increase of an annual property tax. In the second case study, the respondents' WTP in order to use and preserve the ecological park Rio Coco was studied. The perceptions of the state of conservation of the park, the number of visits, the expenses for a visit and the time spent in the park are some of the factors that were studied.

The CVM was used in urban parks in China by Jim and Chen [43], Song et al. [44], Song et al. [45] and Chen and Qi [46]. The evaluation of green areas in Guangzhou city, in South China, and the residents' WTP for the use of these spaces was examined by Jim and Chen [43], while the activities in which residents partake were examined through the responses of the 340 people who participated in

the research. The visitors' WTP for the use of five parks in Tainan city was studied with on-site research from March to June 2010 [44]. The researchers attempted to deduce the visit frequency, the activities in which the visitors participated, their satisfaction with urban parks and the people they visited them with, but also the reasons for their refusal to pay. Two years later, Song et al. [45] researched people's WTP for the visit and preservation of eight green areas in Jinan, in North China.

A hypothetical scenario in which the facilities of Fuzhou National Forest Park are downgraded was presented to its visitors [46]. Moreover, an entry ticket was proposed. A total of 249 people participated in the research in October 2015 and in January 2016. Similarly, the probability of the residents accepting to pay a certain amount of money in order to preserve the public parks in Nagasaki city, in Japan, was investigated by Ahmed and Gotoh [47]. The reasons that led people to visit the parks and the reasons for their willingness or refusal to pay were examined.

The value of green spaces in Hong Kong was evaluated through a scenario which envisaged a reduction of about 20% of urban green spaces for the next five years and the willingness of the residents to pay a monthly tax in order to prevent this scenario [48]. The researchers examined the frequency of visits to parks, the reasons for the visits and the motivation of people to either accept of refuse to pay. Social and demographic characteristics, but also the frequency of visits to parks, were considered for the outcome. The significance of trees in the city Kota Kinabalu, in Malaysia, and the willingness of the residents to pay a donation in order for their number to be increased was researched by Hilmi and Mojiol [49].

Researches for the valuation of urban parks were conducted in Pakistan. Residents' perspectives regarding the recreation services offered by parks in the city of Karachi were researched by Anwar [50]. The 200 people who participated in the research were asked if they would pay an entry fee in order to use the parks in their city. Another remarkable research in Pakistan was the one by Khan et al. [51]. The object of this survey was the Park Bagh-e-Naran and the Park Tatara in Peshawar. The probability of respondents accepting to pay for the improvement of the services provided by parks as well as the amount of money were examined.

In Tehran, in Iran, the WTP for the use of the Javanmardan Park was assessed [52]. Similarly, Membrebe et al. [53] evaluated the Arroceros Urban Forest Park in Philippines and the probability of the residents accepting to pay an entry ticket to visit the park, for it not to be replaced by buildings and continue to exist for future generations. Popoola and Ajewole [54] studied the willingness of the residents of Ibadan city, in Nigeria, to pay for the restoration of the urban environment, while the aspects regarding who should handle these funds were investigated.

An improvement scenario of the services provided within Wanda Park was examined, as well as the visitors' WTP a more expensive entrance ticket in order for it to be implemented [55]. Apart from the demographic characteristics of visitors, questions were asked about the reasons for the willingness or refusal to pay as well as the activities that visitors partook in, the frequency of their visits and their level of satisfaction with the existing facilities.

In Senegal, the value of Parc Zoologique de Hann was examined, as well as the respondents' WTP an entrance for the improvement of the quality of the services provided—and, more specifically, for the increase of biodiversity of the animals in the park [56]. The demographic characteristics of visitors, the distance, the frequency of visits and the magnitude of groups were examined.

There are many researches conducted in Europe on the assessment of parks using the CVM. Cook et al. [57] examined the Heiomork open space, in the southeast of Reykjavik, in Iceland, and the willingness of taxpayers to pay an additional lump sum tax for its conservation. The research was performed through the use of a network. Opacak and Wang [58] studied the willingness of Zagreb's residents to pay for the creation of a park in a current landfill.

In the southern countries of Europe, some researches refer to Spain and Italy. Specifically, the advantages derived from the creation of a park in Valencia, in Spain, were researched by Del Saz Salazar and Menendez [59]. The people who participated in the research were asked to answer whether they would be willing to pay a certain tax for the area where the old railway station was to be

transformed into a park. A few years later, in 2005, Del-Saz Salazar and Rausell-Koster [60] examined the benefits derived from the use of El Jardin del Turia Park, in Valencia. Participants were asked to declare whether they accepted a tax increase for using the park and the improvement of its facilities. The activities undertaken by visitors, the number of visits to the park, the length of stay as well as the demographic characteristics of participants were examined. The valuation of two more parks was estimated in Spain, in Monte San Pedro Park (A Coruna) and Grajera Natural Park (Logrono) [61]. Visitors were asked whether, and how much, they would pay for an entry ticket in order to visit the parks and contribute to their conservation. They were also asked to answer questions about their demographic characteristics, their satisfaction with their visits to the parks and the frequency of their visits. Those who refused to pay were asked for the reasons of their refusal. In a research conducted in Italy by Forleo et al. [62], the respondents' WTP for the use and the benefits of the non-use of a green space in Monte Vairano were examined.

The studies that were conducted in Greece in urban parks using the CVM are limited [24,63,64]. The eagerness of citizens in the center of Attica to contribute money for the creation of a foundation aimed at the conservation and the extension of urban forests constituted a research field for Kalavrytinos and Damigos [63]. This research combined the CVM, hedonic pricing and the perception of respondents regarding the importance of urban forests, as well as the information sources. Xifilidou et al. [64] studied people's WTP for the creation of more parks in the center of Thessaloniki. This study also applied the hedonic pricing method. Another interesting study is that of Latinopoulos et al. [24]. They studied the residents' WTP a "green tax" and the maximum amount for the creation of a park following the relocation of the Thessaloniki International Fair. People who participated in the research answered questions about the importance that they attribute to green areas, the effects they judge such a project will have, the reasons for their willingness and the reasons for their refusal to pay.

2.2.2. CVM Studies for Forest Parks and Natural Protected Areas

A protected area is: "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" [65]. Furthermore "Natural or unmodified areas are those that still retain a complete or almost complete complement of species native to the area, within a more-or-less naturally functioning ecosystem" [65].

Several surveys around the world used the CVM in order to assess the value of forest parks and natural areas. People's WTP for the preservation of Morro do Diabo State Park and the Atlantic tropical forest was studied by Adams et al. [66]. The payment vehicle that was proposed was a monthly tax in the water bill. Another research studied visitors' WTP a higher entry ticket for five protected areas in Mexico and the determinants for their decision [67].

The CVM has been applied extensively for the valuation of forest reserves in Iran. Amirnejad et al. [68] examined the value that citizens attribute to the northern forests of Iran. This value is expressed through their WTP a special tax to preserve forest reserves. Two years later, Granbarpour et al. [69] investigated the recreation value of Baba Aman Natural Park. The 201 visitors who participated in the research were invited to state if they would pay for the current state of the park and the enhancement of the facilities provided. The economic assessment of National Parks in Iran has been estimated through a network survey in 2012 [70]. The researchers studied the respondents' willingness to pay an entrance ticket for the preservation of National Parks and whether local people would benefit from ecotourism. Finally, Limaei et al. [71] conducted a research about the willingness of Saravan Forest Park's visitors to pay an extra entrance ticket to use the park. Similarly, the willingness of visitors of Khangchendzonga National Park in India to pay for its preservation was examined [72], while the willingness of visitors of the protected Annapurna area, in Nepal, to pay a higher entrance fee was investigated [73].

In Vietnam, Khuc et al. [74] examined the willingness of residents affected by lack of water and electricity due to drought to pay for the restoration of forests. Another research in the same country

was conducted in Tam Dao National Park, using the CVM [75]. People who participated in the research were asked for their WTP an increased entrance ticket for the conservation of the park and, in particular, for the conservation of the opisthotropis tamdaoensis species. The questionnaire included questions about the reasons for the willingness or refusal to pay and about the views of the respondents on environmental issues.

The willingness of visitors of three parks in Hong Kong to pay an annual tax for five years in order to develop ecotourism was studied by Chen and Jim [76]. The objects of this study were the Pok Fu Lam, Shing Mun and Clearwater Bay parks. Another research assessed the willingness of visitors to pay for maintaining the quality of Huisun National Forest Park, in Taiwan [77]. 223 people participated in the research. Lee and Han [78] and Lee and Moon [79] used the CVM to assess natural resources in Korea. Specifically, visitors' willingness to pay entrance tickets to use the parks or taxes aimed at the parks' conservation was investigated [78]. The parks that were examined were Mt Soraksan, Mt Pukansan, Mt Kayasan, Hallyo-Haesang and Taean-Haean. Furthermore, Lee and Moon [79] proposed gain and loss scenarios in order to assess hikers' WTP. The TCM and CVM were used for the valuation of the Kayabasi forest location in Turkey, with the survey's respondents asked to declare their willingness to pay for one conservation and two improvement scenarios [80]. The CVM was also used in case studies in Malaysia [81–85] and in Indonesia [86–88].

The willingness of local residents to pay for the quality of ecotourism services in Cross River National Park, in Nigeria, was studied by Ezebilo et al. [89]. Similarly, in a study on Nyungwe National Park, in Rwanda, the willingness of international and national tourists to pay for recreational services and the entrance to park was assessed [90]. Bamwesigye et al. [91] studied the willingness of 203 residents in Uganda to pay for the existence of the forest.

In Europe, Tyrvainen and Vaananen [92] studied the willingness of the residents of Finland to pay for forest parks. Half of the participants were asked if they would pay a monthly entry ticket and the other half if they would be willing to pay a seasonal fee for the use of recreational areas. Reynisdottir et al. [93] examined the value ascribed by visitors to two natural resources in Iceland, the Gullfoss waterfall and Skaftafell National Park. People who participated in this research stated their WTP an entry ticket for the conservation or improvement of these areas. Bernabeu and Samos [94], in Spain, estimated visitors' WTP for Calares del Mundo and Sima Natural Park. Furthermore, Patti's [95] survey in Sicily should be taken into account.

The valuation of forest reserves was also implemented in Greece by using contingent valuation analysis. Matsiori et al. [96] studied the willingness of the visitors of Pertouli forest to pay for an entry ticket. Moreover, Machairas and Hovardas [97] investigated respondents' WTP for an entry ticket for a mountain complex in central Rhodope to be turned into a National Park.

The transformation of Whian Whian State Forest into a new National Park, in New South Wales, was studied by Duthy [98]. This study area is of major importance both for the forest and for the timber. The demographic characteristics of individuals, their attitude toward the environment and the importance they attach to the uses of the area were examined in this research. Flatley and Bennett [99] conducted a survey on the willingness of Australian tourists to pay for the maintenance of two tropical forests. The study area was the Republic of Vanuatu, and the survey was conducted for two weeks in 1994. The respondents were asked about the importance of maintaining the area and the possible visit to a tropical forest.

2.2.3. CVM Studies for Marine Parks, Wetlands and Protected Areas

Regarding CVM studies assessing marine parks, wetlands and protected areas, the results are the following: Lee et al. [100] applied the CVM in order to assess the importance that visitors attribute to the SunCheon Bay ecological park, in Korea. A random sample of 586 visitors were asked if they would accept a proposed entry fee in order to visit the park. In a research in Korea, Kim et al. [101] aimed to identify the advantages arising from the characterization of Baegnyeong island as a protected area, and the willingness of residents to pay a tax for this aim for the next ten years.

Similar researches were conducted in Thailand. The willingness of visitors of the Mu Ko Similan National Marine Park to pay for scuba diving was studied by Asafu-Adjaye and Tapsuwan [102]. Piriyapada and Wang [103] examined the willingness of residents to allocate money to the creation of a wastewater treatment plant in Ko Chang National Marine Park. The same researchers examined the willingness of the visitors of Ko Chang Marine Park to pay an entrance ticket in order to preserve and improve the park's resources [104].

In Malaysia, the research of Ahmad and Hanley [105] stands out for its assessment of visitors' WTP for Payar, Redang and Tioman Marine Parks, with the purpose of reducing the number of visitors for the parks' protection. Visitors' WTP for the preservation of Pulau Redang and Pulau Payar Marine Parks was also examined by Yacob et al. [106]. Anna and Saputra [107] combined the TCM and CVM aiming to examine respondents' WTP for Cenderawasih Bay National Park, in Indonesia.

Martin-Lopez et al. [108] researched the willingness of residents to pay in order to preserve Donana National Natural Park, in Spain, while the reasons of payment refusal were researched. The willingness of Al-Prespa park's visitors in Albania to pay a higher entrance ticket was examined by Grazhdani [109]. The CVM was also applied to wetland parks in Greece. Halkos and Jones [110] examined respondents' WTP to improve biodiversity in the Evros Delta and Axios-Loydias-Aliakmonas Delta parks. Three scenarios were presented: in the first one, the payment vehicle was a monthly government tax; in the second one, the payment model was an entrance ticket; and in the third one it was a monthly community tax. Halkos and Matsiori [111] examined the willingness of 400 residents of Volos to pay in order to improve the quality of the coastal zone of the Pagasitikos gulf. The impact of environmental attitudes, demographic characteristics and preferences for coastal zones were examined with regard to individuals' willingness to pay. Another research in the Greek area is Jones et al.'s [112], who examined respondents' WTP for the preservation of the National Park of East Macedonia and Thrace.

The recreational value of lake Mokoan was examined by Herath [113] using the TCM and CVM. Ndebele and Forgie [114] studied the economic value of the restoration and maintenance of Pekapeka Swamp, in New Zealand. The questionnaire examined the participants' awareness regarding the study area, their participation in the recreational activities offered and their attitude toward environmental protection. The willingness to pay was expressed through the special offer of an annual amount for the next five years.

2.2.4. CVM Studies for Wildlife Parks

Sharahi et al. [115] and Abedini et al. [116] used the CVM in wildlife parks in Iran. In the first case study, the willingness of visitors of Chitgar Park to pay an entrance ticket to visit it was examined. In the second case study, Abedini et al. [116] estimated the value of the recreation of Lavizan Jungle Park, in Tehran. Visitors' WTP for the preservation of Bhitarakanica National Park, in India, was examined by Bal and Mohanty [117]. The questions of the questionnaire were about the demographic features of visitors, their beliefs about ecotourism resources, their visit frequency, the duration of their stays in the park and their travel expenses.

Pandit et al. [118] examined the value that visitors ascribe to Chitwan National Park, in Nepal. The participants were asked to declare if they would pay a more expensive entrance ticket. Rathnayake [119,120] carried out two studies in Sri Lanka. The first study was about Horton Plains National Park, using the TCM and CVM [119]. A total of 352 visitors were questioned, and two recreational scenarios were proposed to improve the satisfaction of the park's visitors. The same author examined the respondents' willingness to pay an entry fee in Minneriya National Park [120]. People who had a negative attitude toward payment were requested to give the reasons for their refusal.

Adamu et al. [121] estimated the value that visitors would give to the Yankari animal shelter, in Nigeria, through their willingness to pay for its preservation. The willingness of local people to pay in order to preserve the Semien Mountain National Park, in Ethiopia, was studied by Walle [122].

The social and demographic characteristics of residents, the beneficial effects of natural spaces and the level of awareness were examined in this survey.

2.3. Main Methods

One of the prevalent econometric methods in contingent valuation studies is logistic regression. According to this model, the estimated probabilities will vary between zero and one and will be non-linearly correlated with the explanatory variables [123]. The dependent variable Y is dichotomous, taking values 1 with probability Θ and values 0 with probability 1−Θ. The discrete probability distribution of this variable is defined according to Halkos [123]:

$$\Pr(Y_i, \Theta_i) = \Theta_i^{Yi} (1 - \Theta i)^{1 - Yi} \quad (1)$$

The regression coefficients of the proposed models quantify the relationship between the explanatory variables and the dependent variable, including the so-called Odds Ratio (OR). The specification of the Logit model is a conversion of probability Pr(Y = 1) specified as the natural logarithm of WTP taking place at E(Y = 1). That is,

$$\log it[\Pr(Y = 1)] = \log_e[odds(Y = 1)] = \log_e\left[\frac{\Pr(Y = 1)}{1 - \Pr(Y = 1)}\right] \quad (2)$$

Latinopoulos et al. [24], Da Silva et al. [42], Song et al. [45], Ahmed and Gotoh [47], Khan et al. 2014 [51], Fardanesh and Zeraatkish [52], Membrebe et al. [53], Lopez-Mosquera et al. [61], Forleo et al. [62], Xifilidou et al. [64], Amirnejad et al. [68], Baral et al. [73], Bernabeu and Samos [94], Iasha et al. [87] and Halkos and Matsiori 2018 [111] used this method.

Another method that has also been used in many empirical studies is the Ordinary Least Square (OLS). A general pattern of multiple linear regression with k + 1 unknown population parameters is defined as:

$$Y_I = b_0 + b_1X_{1i} + b_2X_{2i} + \ldots + b_kX_{ki} + e \quad (3)$$

The dependent variable Y_I depends at the same time on the independent variables ($X_{ji)}$ [123].

Anna and Saputra [107], Jones et al. [112], Bal and Mohanty [117] and Rathnayake [119] applied Ordinary Least Square in their research.

Bowman et al. [38] and Le Tran et al. [40] used the Tobit model in their analysis. The Tobit model is applied as follows:

$$Y^* = X'\beta + \varepsilon \; \varepsilon \sim N(0, \sigma^2) \quad (4)$$

Tobit is used in order to avoid endogeneity bias.

$$Y_i = Y_i^* \text{ if } Y > 0_i$$

$$Y_i = 0 \text{ if } Y^* \text{ missing}$$

The Tobit model was modified to tackle the excess of zero responses, proposing the double-hurdle model [124,125]. The first hurdle refers to the participation decision and the second to the level of participation. This model is presented as follows:

$$\begin{gathered} Y_i = Y^*_{2i} \text{ if } Y^*_{2i} > 0 \text{ and } Y^*_{1i} > 0 \\ Y_i = 0 \text{ otherwise} \end{gathered} \quad (5)$$

The double-hurdle model was used by Del Salazar and Rausell-Koster [60] and Halkos and Jones [110]. Other widely applied models are the Probit [106,121] and double-bounded [47,57] methods.

3. Results

Due to the plethora of previous researches, and apart from the nature of the parks, a distinction was made based on the reference country. Therefore, in this chapter, we will analyze the results in the Americas, Asia, Africa, Europe and Australia. In order to be able to compare the results, we converted the amount of willingness to pay for each case study into euros. The exchange rates of convergence to € are presented in Table 1.

Table 1. Exchange rates of convergence to € (26/4/2020) [1].

ETB	0.028	IRR	0.000022	NGN	0.0024	AUD	0.59
VND	0.000039	ISK	0.0063	KRW	0.00075	TWD	0.031
BRL	0.17	ESP	0.01	PKR	0.0058	HRK	0.13
XOF	0.0015	CNY	0.13	LKR	0.0048		
US$	0.92	TRY	0.13	FIM	0.17		
JPY	0.0086	MYR	0.21	HKD	0.12		
INR	0.012	NZD	0.56	IDR	0.000060		

[1] Source of exchange rates: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/index.en.html.

3.1. Results of Previous Empirical Studies in the Americas

Sixty-six percent of respondents were willing to pay in order to enjoy more open space in Cedar Rapids, Iowa, USA [38]. The average willingness to pay was 4,012.75 €. According to another study [39], demographic factors such as educational level and income, but also the frequency of visits to urban forests of Savannah, affect the tourists' WTP. In this case study, interviewees were willing to pay 10.4 € for access to the urban forest. Le Tran et al. [40] concluded that the willingness to pay was 63.56 € per household for 5 years, while Da Silva et al. [42] recorded a WTP of 1.91 € in order to enter the park. The demographic characteristics as well as the visits to other parks were statistically significant prognostic factors for willingness to pay [41]. The results showed that the average WTP was 6.63 € as additional property tax. The population was found to be willing to pay 1,953,173,03 € per year as a tax in water billing for the preservation of the tropical forest [66]. Finally, Witt [67] stated that visitors' willingness to pay ranged from 14.51 € to 23.87 € for an entrance ticket.

3.2. Results of Previous Empirical Studies in Africa

The main determinants of the respondents' decisions were found to be their employment situation and the vicinity of forest reserves [54]. The average monthly willingness to pay was equal to 0.38 €. Demographic as well as behavioral factors significantly affect the probability of accepting an increased entry ticket to Warda Park [55]. Visitors were willing to pay 0.53 €–0.56 € for an entrance ticket. The results of another empirical study revealed that visitors were willing to pay an entrance ticket three times more expensive than the current one [56].

In the case of forest parks, the mean WTP for female and male interviewees was 2.1 € and 0.51 €, respectively [89]. Bamwesigye et al. (2020) stated that residents were willing to pay 13.87 € per year for the existence of the forest. A previous empirical study on wildlife parks revealed that 77.9% of the sample declared itself willing to pay in order to preserve the shelter [121], while respondents' willingness to pay was 0.67 € per household per year [122].

3.3. Results of Previous Empirical Studies in Asia

The contingent valuation method has been widely applied to urban parks in China. Jim and Chen [43] proved that income statistically affects respondents' decisions in an important way, while Song et al. [44] stated that satisfaction affects residents' answers in a positive way. In another

research by the same authors [45], the monthly income, visit frequency and educational level were found to be important prognostic factors. Alternatively, gender, age, the satisfaction gained from the park visit and the access time seem not to affect the respondents' answers in a statistically significant way. The average WTP was estimated to range from 1.43 € to 1.8 € depending on the model used [46]. Respondents declared a willingness to pay 9.23 € per household per month for green spaces in Hong Kong [48] and 12.05 € per year as an annual tax for 5 years in order to develop ecotourism [76].

The amount of the special offer, frequency of visits, income and age affect the residents' WTP for the conservation of public parks in Japan [47]. The amenity value of Huisun National Forest Park, in Taiwan, was estimated to be 88.57 € per person per year in winter and 89.21 € per person per year in summer [77]. In Korea, the proposed amount for payment was found to be a major factor in both models for all National Parks examined by Lee and Han [78], while hikers' WTP was found to be 5.59 € and 9.17 € under a gain and loss scenario, respectively [79]. Results showed that the proposed amount, information for marine species in danger, number of children in a household and income affect WTP in the case of Baegnyeong island [101], and visitors of SunCheon Bay ecological park were willing to pay 2.71 € for the entrance ticket [100].

In Malaysia, the amount proposed for payment, the means of transportation in the city, the tribe of the respondent and the educational level were found to affect the answers of the sample. In contrast, other demographic variables, but also the perceptions and satisfaction with the existing condition of the trees, seemed not to have a statistically important effect on WTP for urban trees [49]. The willingness to pay was found to amount to 3.24 € for non-visitors, 3.64 € for Malaysians and 7.28 € for foreigners for an entrance ticket [81], 3.42 € and 1.56 € for foreigners and locals, respectively [82], 1.78 € [83], 0.61 € per visitor [84] and 4.97 € for an entrance ticket [85]. All the above studies concern national parks. Furthermore, visitors declared a willingness to pay 13.02 €–14.04 € for an entrance ticket for marine parks [105], and the respondents' income was an important predictor of their decisions [106].

Empirical findings in the Philippines showed that even if respondents are not willing to pay in order to visit the urban forest park, they give special importance to its existence and inheritance [53]. Furthermore, 57% of respondents refused to pay for forest restoration in Vietnam [74], but were willing to pay 1.39 € for ecosystem conservation and 0.85 € for the protection of the opisthotropis tamdaoensis species [75].

In Indonesia, tourists' origin influences in an important way their willingness or refusal to pay for Cenderawasih Bay National Park [107]. In the case of forest parks, visitors were willing to pay 0.57 € [87], 0.46 € [88] and 0.41–1.53 € [86] as an entrance fee. Empirical studies in Thailand showed that 89% of the sample were willing to support a program for about 6.03 $ per household per month [103], while participants were willing to pay 6.72 €–11.1 € to enter the Marine Park [104]. However, Asafu-Adjaye and Tapsuwan [102] noted the need for further research combining the CVM and TCM.

According to Anwar [50], the impact of participants' income on their WTP was minimal, while income, educational level, travel cost, distance and quality of services were important prognostic factors in the case of public parks in Pakistan [51]. Maharana et al. [72] showed that the willingness to pay amounted to 8.17 € per visit for foreigners, 5.73 € per year for locals and 1.76 € per visit for domestics. Another research in India recorded 0.48 € as an average entrance fee [117]. People's income, the educational level, the distance from the park and the proposed amount were found to affect their willingness to pay [119], and 60% of respondents were willing to pay more than the current entrance ticket in order to view the elephants in the park in Sri Lanka [120].

In Iran, Fardanesh and Zeraatkish [52] stated that the bid amount and the demographic characteristics affected respondents' answers. 65.8% of the respondents declared that they would pay for the conservation of forests and the prevention of their destruction [68]. The income of the respondents was found to affect their responses in a positive way [69] and the overwhelming majority of visitors (91.2%) was willing to pay an average amount of 1.67 € per visit [71]. The use value for national parks was equal to 1.08 € [70], and the average WTP amounted to 0.068 € per visitor [115].

Studies in Nepal showed that the WTP was equal to 63.95 € [73] and 16.81 € for international visitors, 13.17 € for visitors from South Asia and 2.49 € for local visitors to enter the park [118]. Respondents were willing to pay 0.082 € for the existing benefits, 0.14 € for installation improvement and 0.17 € for more recreational activities as an entrance ticket in Turkey [80].

3.4. Results of Previous Empirical Studies in Europe

Cook et al. [57] revealed that participants in Iceland were willing to pay 107.4 €–156.26 € as lump sum tax for the preservation of an urban open space. In the case of national parks, respondents were willing to pay 2.1 € for the entrance ticket to Gullfoss and 3.2 € to Skaftafell [93]. The results of another study in Finland showed that the WTP ranged between 18.16 € to 23.71 € in the form of seasonal payments [92]. According to Opacak and Wang [58], the residents were willing to pay 3.57 € for the entrance ticket in the case of the creation of a park in a landfill area.

Del Saz Salazar and Menendez [59], Del Saz Salazar and Rausell-Koster [60] and Lopez-Mosquera et al. [61] applied the CVM to urban parks in Spain, while Bernabeu and Samos [94] applied the method to a forest park and Martin-Lopez et al. [108] to a marine park. An important factor was people's proximity to future parks [59], and the WTP amounted to 53.61 € as a special tax for five years [59], 7.6 € as an annual increased tax [60], 1.01 € for San Pedro and 0.58 € for Grajera as an entrance ticket for use value [61], 0.69 € for San Pedro and 0.65 € for Grajera as an entrance ticket for preservation value [61], 3.70 €–4.61 € for the entrance in the park [94] and 23.9 € annually, as a donation [108]. In case studies in Italy, 30% of the participants refused to pay [62], while the average willingness to pay was 11.5 € for an entrance ticket [95]. It is worth mentioning the research by Grazhdani [109], who concluded that the average WTP ranged between 1.4 € and 1.6 € per person.

The valuation of parks and protected areas was also implemented in Greece by using contingent valuation analysis. In the case of urban parks, the view of the park, age, professional situation and educational level of respondents were found to affect in an important way the willingness to pay [63]. The type of ownership and people's income were important prognostic factors for their annual contribution [63]. Furthermore, income, use of free green spaces by people and their satisfaction with the existing green spaces affect their WTP [64]. Respondents' WTP was found to amount to 41.5 € as a donation [63] and 4 €–4.5 € per household as a bimonthly green tax [24]. Contingent valuation studies in national parks revealed that the recreational value of the area under consideration was approximately 565 million euros per year [96], while most participants responded positively to the introduction of paid tickets for the creation of a park [97]. Halkos and Jones [110] found that respondents were willing to pay from 4.40 € to 5.18 € for two national parks, while Halkos and Matsiori [111] concluded that the willingness to pay amounted to 23.06 € as a lump sum payment. Finally, 43.9% of citizens declared their intention to pay for the park's protection [112] and the average WTP amounted to 7.84 € per month.

3.5. Results of Previous Empirical Studies in Australia

It is worth highlighting the studies of Duthy [98] and Flatley and Bennett [99] on forest parks. In the first study, the response rate of the sample was 26.5%, and the willingness to pay amounted to 11.14 € per year for 3 years, while in the second study respondents were willing to pay 11.93 € as a lump sum payment. Herath [113] showed that the bid value and family size were significant prognostic factors. The estimated willingness to pay for the wetland was 2.89 € per person per year for open-ended questions and 3.93 € per person per year for dichotomous choice questions [113]. Similarly, respondents' WTP amounted to 38.51 € and 26.62 € per family per year for 5 years for logistic regression and OLS, respectively [114].

4. Discussion

Previous surveys widely used entrance tickets as a payment vehicle. The results showed that participants in different countries are willing to pay from 0.017 € to 63.95 € to visit forest parks. The WTP amounted to 0.068 €–16.81 € per visit for wildlife parks, 1.4 €–13.53 € for marine parks and 0.058 €–10.4 €

for urban parks and green areas. Apparently, the maximum WTP is expressed for forest parks and the minimum for urban parks. This may be related to people's preferences and the value they give to the nature of each park. It may also be affected by their origin.

The distinction between countries in the climate zone to which they belong had the following results. The average WTP for parks and protected areas that belong to the tropical zone ranged from 0.41 € to 23.87 € per visitor. On the other hand, the visitors of parks and protected areas in temperate zones were willing to pay 0.017 € as a minimum and 63.95 as a maximum entrance fee.

Another comparison that can be drawn is the WTP between developed and developing countries. Taking into account the classification of countries by the International Monetary Fund [126], the WTP in case studies of developed countries ranged from 0.58 € to 11.5 € per visitor for an entrance ticket. On the other hand, the results showed that the WTP ranged from 0.017 € to 63.95 € per visitor to enter the park. The high willingness to pay in developing countries may be affected by the responses of foreign tourists.

One of the main objectives of this paper was to estimate the economic valuation of parks and protected areas in countries that have been plagued by the economic crisis. Greece, Iceland, Italy and Spain are the countries most affected by the financial crisis in the European Union since 2008. Based on the year in which the survey was conducted, the results are as follows: 73.59% of the sample stated that they wanted the Heiðmork urban space to be preserved; 60.76% of them accepted the first proposed amount of payment; and 25.37% the second amount presented to them. The average WTP ranged from 107.4 € to 156.26 € as a lump sum tax [57]. In Italy, only 30% claimed they were not willing to pay to maintain an urban green area. The main reason for the refusal is related to the belief that the urban green area is a public good [62].

Lopez-Mosquera et al. [61] estimated the use and the conservation value of two parks. Regarding the use value, respondents were willing to pay on average 1.01 € and 0.58 € for an entry ticket for San Pedro and Grajera Park, respectively. The average WTP was equal to 0.69 € and 0.65 € for the two parks in the case of the estimation of conservation value. Another research in Spain revealed that visitors' WTP ranged between 3.70 €–4.61 € to enter the park [94].

In the case of Greece, the majority of the sample stated that they were willing to contribute to the creation of a new urban park. The average WTP was 4 €–4.5 € as a bimonthly green tax [24]. According to the authors, the WTP did not show a significant difference during the period 2010–2013. Citizens were eager to contribute from 4.40 € to 5.18 € to improve the biodiversity protection [110]. Halkos and Matsiori [111] concluded that respondents were willing to pay 23.06 € on average as a lump sum payment. In this case study, a significant percentage of the sample were willing to pay to improve the quality of the coastal zone.

In conclusion, previous empirical studies showed that citizens were willing to pay for a park despite the economic crisis. This may be due to the increased interest of people in parks and protected areas and the subsequent benefits they afford. All these results of previous empirical studies worldwide are presented in the tables of the Appendix A.

5. Conclusions

As shown, the sustainability of cities is negatively affected by a degraded environment and reduced natural resources [127]. Public parks and open spaces are considered important for managing the effects of climate change [128]. The positive influences which result from parks and green spaces have been the subject of many research studies and affect both the environment and humans [129].

The multiple benefits that the parks offer to humans as well as to the environment are widely recognized by both the public and specialists. The significance of these benefits is currently very high, especially in the case of cities, due to climate change and its impact on the urban environment. The need to estimate the value that people attach to parks has led to the development of valuation methods for the value of non-market goods. One of the most widespread methods is contingent

valuation. The aim of the CVM is to assess whether and how willing people are to pay in order to enjoy goods such as the parks, or to avoid their loss.

The present study aimed to record a large amount of empirical studies which have been carried out globally for parks by using the CVM. Given the plethora of investigations that have been carried out, it was judged useful to classify them according to the nature of each park. This way, the use of the CVM for urban parks and green areas, for forest parks and natural protected areas, for marine parks, wetlands and animal parks was discussed.

The reference to multiple researches that have been carried out on the economic valuation of parks and protected areas shows that the corresponding empirical studies in Greece have thus far been limited. This conclusion is further strengthened for the case of the existing urban parks. As a result, further research is needed for the economic assessment of urban parks in Greece, based on the determinants of the WTP according to previous empirical studies and the detection of new influential factors.

However, the use of the CVM, although widespread, has been criticized for some disadvantages which should be considered. These disadvantages concern the validity and reliability of the results [130]. The literature review shows that the results of a survey are influenced by the way it is conducted. More specifically, surveys conducted through face-to-face interviews [43,61] had higher response rates compared to those who used other techniques, such as telephone interviews [63] or mail distribution [40].

Another important parameter is the type of questions for determining the willingness to pay. Some surveys used open-ended questions [82,84] to ensure the maximum willingness to pay of individuals. Other studies used dichotomous (single or double-bounded) choice questions [105] or payment cards [45], because some of the respondents may not be familiar with the concept of environmental goods market. Similarly, the payment vehicle used in the survey is a major issue. In most cases of parks valuation, the entrance ticket is used to determine the WTP [39,87], while in other cases a tax is used [24].

Last but not least, the management of protest responses is also important. Questions are raised about how exactly the protest responses are defined, what happens to the results and whether protest zero bidders differ from others. According to Halkos and Jones [110], the WTP differs when protest responses are removed.

Based on the above, the format of questions, the possible protest responses due to the nature of goods as well as the fact that the surveys are based on hypothetical scenarios constitute some limitations. Therefore, the variations in respondents' answers between a hypothetical scenario and a real situation should be presented.

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Appendix A

Table A1. Contingent Valuation Method (CVM) studies in urban parks and green spaces.

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[24]	Creation of park	Thessaloniki Greece	600 face-to-face interviews to residents of Thessaloniki in 1/2013	Logit, single-bounded choice models, double-bounded choice models	4–4.5 € per household as a bimonthly green tax
[38]	Open spaces	Cedar Rapids USA	296 persons spring 2004 (51% responses)	Probit Tobit	4012.75 €
[39]	Urban forests	Savana USA	640 face-to-face interviews (478 used) 7/2008 and 7–8/2009	Maximun Likelihood Estimation	10.4 €
[40]	Urban Parks (5% expansion of urban parks as mitigation to climate change)	Atlanta Georgia USA	470 urban residents through mail in 2013	Tobit	63.56 €/households for 5 years, no protest responses
[41]	Conservation-improvement of Park	Passo Fundo Brazil	338 households at their homes	Ordinary Least Square	6.63 € as additional property tax
[42]	Ecological Park	Rio Coco Brazil	159 visitors	Logit model	1.91 €
[43]	Green spaces	Guangzhou China	340 face-to-face 26/2–19/3/2003	Probit	2.27 € per person per month
[44]	Urban parks	Tainan China	576 visitors personal interviews 3–6/2010	Spearman correlations	5.5 €–5.62 €
[45]	Green spaces	Jinan China	606 persons 4–5/2012	Logit	10.66 €/year
[46]	Fuzhou National Forest Park	China	249 face-to-face interviews 10/2015–1/2016	Interval regression Heckman 2-step Full Information Maximum Likelihood	1.8 € 1.43 € 1.51 €
[47]	Public parks	Nagasaki Japan	194	Logit Double-bounded	44.92 €/household
[48]	Urban Parks 20% limiting green areas for 5 years urban development	Hong Kong	495 interviews, 477 valid 1–3/2008 (only weekends)	Ordinary Least Square, chi-square	9.23 € per household/month
[49]	Urban trees	Kota Kinabalu Malaysia	154 interviews, (121 analyzed)	Ordinary Least Square	1.66 € as a donation
[50]	Public parks green space	Karachi Pakistan	200 persons 6/2004–8/2004	Probit	0.058 € entrance ticket
[51]	Improved recreational services	Bagh-e-Naran and Tatara Parks Pakistan	500 visitors (220 Tatara, 280 Bagh-e-Naran 9–10/2013	Ordinary Least Square Logit	Park visiting demand was found to be significantly income elastic for both parks.
[52]	Javanmardan Park	Tehran Iran		Logit	0.65 € household/month
[53]	Urban Forest Park	Arroceros Philippines	64 face-to-face interviews	Logit	Most respondents eager to pay entrance ticket for parks
[54]	Forests' restoration	Ibadan Nigeria	370 residents 7–12/1998	Ordinary Least SquareCorrelations	0.38 €
[55]	Park's improved services	Warda Africa	160 persons	Logit Turnbull lower bound estimator	0.53 €–0.56 € per person for entrance ticket

Table A1. *Cont.*

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[56]	Recreational value of Parc Zoologique de Hann	Dakar Senegal	477 visitors face-to-face interviews 3–4/2014	Single- and Double-bounded models	Entrance ticket three times higher than the current one
[57]	Preservation of park	Heiðmork Iceland	2185 persons on line research 2 weeks 6/2010	Double-bounded dichotomous choice model	107.4–156.26 € as lump sum tax
[58]	Creation of a park on an existing landfill	Zagreb Croatia	391 residents 2/2017–3/2019	Double-bounded models Logit	3.57 € per person for an entrance ticket
[59]	Creation of anew urban park	Spain	900 residents 3/2001	Parametric and non-parametrics Spike l- Logit	53.61 € as special tax for five years
[60]	Urban Park	El Jardin del Turia Spain	1480 face-to-face interviews Spring 2005	Tobit and double-hurdle models	7.6 € as annual increased tax
[61]	A Coruna and Logrono Natural Parks	Monte San Pedro and Grajera Spain	785 face-to-face interviews (381 sample of 2008 and 404 in 2010)	Logit and Probit Double censored Tobit (Heckman)	San Pedro 1.01 € Grajera 0.58 € for entrance ticket (2008 use value) San Pedro 0.69 € Grajera 0.65 € for entrance ticket (2010, preservation value)
[62]	Conservation of urban green area	Monte Vairano Italy	242 students of Molise university via email 3/2014	Logit	30% refused to pay
[63]	Conservation-expansion of urban forests	Attica Greece	296 households 14/7–30/7/2004 phone interview	Chi-square, Mann-Whitney, Kruskal-Wallis	41,5 € as a donation
[64]	More urban green spaces	Thessaloniki Greece	100 persons	Logit	Income was found to significantly affect decisions

Table A2. CVM studies in forest parks and natural protected areas.

References	Preservation of	City Country	Sample Size/ Time Period	Econometric Approach	Mean WTP
[66]	Preservation of National Park and tropical forests	Morro do Diabo Atlantic Brazil	of 648 persons personal interviews	Tobit	Population is WTP 1,953,173,03 €/year for preservation of Morro do Diabo park (tax in water billing)
[67]	Five protected areas	Mexico	877 visitors 12/2016 and 8/2018	Double-bounded choice model	14.51 €–23.87 €
[68]	Preservation of north forests	Iran	950 face-to-face interviews during 6 months in 2004	Logit	2.32 € monthly or 27.83 € per household per year as government tax
[69]	Recreational value of Natural Park 2 scenarios (current situation of park and improvement)	Baba Aman Iran	201 on site interviews 6–9/2006	Ordinary Least Square	0.017 €–0.025 € 1st and 2nd scenario for entrance ticket
[70]	Preservation of national parks and locals' benefits	Iran	2121 online interviews 7–11//2012	Logit	Use value for parks 1.08 €
[71]	Forest Park	Saravan Iran	480 visitors in 2014 and 2015	Logit	1.67 € per visitor for entrance ticket

Table A2. *Cont.*

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[72]	Conservation of National Park	Khangchendzona India	545 face-to-face interviews 5/1997, 10–12/1997	Ordinary Least Square	8.17 € foreigners per visit, 5.73 € locals/yr 1.76 domestic visitors/visit
[73]	Annapurna area	Nepal	315 foreign visitors 4–5/2006	Logit	63.95 € for entrance ticket
[74]	Forest restoration	Vietnam	211 face-to-face interviews 11/2014	Maximum Likelihood Estimation	1.49 € per family
[75]	Conservation of National Park and protection of o. tamdaoensis	Tam Dao Vietnam	250 face-to-face interviews of residents (224 used) 4–5/2015	Logit Double-hurdle models	1.39 € for ecosystem conservation 0.85 € for protection of o. tamdaoensis
[76]	Pok Fu Lam, Shing Mun and Clearwater Bay	Hong Kong	613 visitors Personal interviews 8–10/2009	Double-bounded DC models	12.05 €/yr as annual tax for 5 years
[77]	Amenity value of Huisun National Forest Park	Taiwan	223 face-to-face interviews	Anova Ordered Probit 8/2017	amenity value 88.57 € per person/yr (winter) 89.21 € per person/yr (summer)
[78]	Use Assessment and conservation of 5 National Parks	Korea	2300 on site interviews summer 1999	Logit	Parks' use value higher than current entry ticket
[79]	A loss and a gain scenario were used	Bukhansan Dulegil Korea	360 hikers on site 12/2013	Logit model	5.59 € in Gain scenario as donation 9.17 € in loss
[80]	forest location Three scenarios	Kayabasi Turkey	130 interviews summer 2000	TCM	0.082 € per visitor entrance ticket for existing benefits, 0.14 € for installation improvement 0.17€ for more recreational activities
[81]	Ecotourism at National Park	Kubah Malaysia	618 face-to-face interviews (303 visitors, 315 non-visitors)	Logit	3.24 € non-visitors 3.64 € Malaysians 7.28 € foreigners for entrance ticket
[82]	Conservation of National Park	Gunung Gading Malaysia	270 visitors Face-to-face interviews 4–5/2012	Ordinary Least Square	3.42 € foreigners 1.56 € locals
[83]	Conservation value of National Park	Gunung Santubong Malaysia	360 face-to-face interviews	Factor analysis	1.78 €
[84]	Conservation and improvement of ecosystem	Kionsom Recreation Centre Malaysia	100 interviews two weeks at weekends	Ordinary Least Square	0.61 € per visitor
[85]	National Park	Taman Negara Malaysia	196 interviews 10–17/3 and 1–13/5/09	Logit Probit	4.97 € for an entrance ticket
[86]	Gunung Pancar Forest Park (5 scenarios of improvement)	Indonesia	30 visitors at weekdays and 100 at weekends 5–8/2014	Tobit	0.41, 0.57, 0.75, 0.9 and 1.53 € per scenario for entrance ticket
[87]	Ecotourism on Park	Puncak Lawang Indonesia	300 visitors personal interviews	Logit	0.57 € for entrance ticket

Table A2. *Cont.*

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[88]	Preservation of resources at National Park	Gunung Gede Pangrango Indonesia	423 face-to-face interviews 6–8/2006	Logit	0.46 € per visit for entrance ticket
[89]	Cross River National Park and ecotourism improvement	Okwangwo Nigeria	150 households 4–5/2008	Ordinary Least SquareTobit	2.1 € for female 0.51 € for male
[90]	National Park	Nyungwe Africa	304 on site and in person interviews 2–7/2015	Ordinary Least Square	13.26 € foreigners 5.68€ national tourists extra money for recreational services
[91]	Forest existence value	Uganda	203 interviews 12/2018–3/2019	Chi-square Logit	13.87 € per year
[92]	Urban forest	Joensuu Finland	500 residents spring 1995	Ordinary Least Square and Tobit	18.16 €–23.71 € seasonal payments
[93]	National Park	Gullfoss waterfall and Skaftafell Iceland	252 persons (130 in Skaftafell 18–19/6 and 122 in Gullfoss 20–21/6/04	Ordinary Least Square	2.1 € (Gullfoss) 3.2 € (Skaftafell) entrance ticket
[94]	Natural parks Segmentation of visitors of lifestyle	Calares del Mundo and Sima Spain	410 visitors 8/2009	Logit Factor analysis	3.70 €–4.61 € for park entrance
[95]	Three Regional Nature Parks	Etna, Nebrodi and Madonie Sicily	3000 visitors, 1000 of each park, 4–6/2015. 2200 answers valid	Logit	11.5 €
[96]	Pertouli forest	Greece	591 in person interviews of park's users	Ordinary Least Square	Total recreational value of forest 565,197,652 €/yr
[97]	Conversion of mountain complex into National Park	Central Rhodope Greece	516 visitors during summer-autumn 2001 and 2002	Logit Cross tabulations	More than 80% willing to pay an entrance ticket
[98]	Whian Whian State Forest	New South Wales, Australia	435 questionnaires were mailed with 26.5% response rate	Multiple linear regressions	11.14 €/yr for 3 years
[99]	Conservation of tropical forests	Republic of Vanuatu	231 visitors 1994	Ordinary Least Square	11.93 € as a lump sum payment

Table A3. CVM studies in marine parks, wetlands and protected areas.

References	Preservation of	City Country	Sample Size/ Time Period	Econometric Approach	Mean WTP
[100]	Ecological Park	SunCheon Bay Korea	586 on site interviews in 6/2009	Logit	2.71 € for entrance ticket
[101]	Protected area	Baegnyeong island Korea	600 households face-to-face interviews 10/2015	One-and-one-half-bounded (OOHB) DC spike model	2.7 € per family per year as tax. For 10 years
[102]	National Park	Mu Ko Similan Thailand	421 scuba divers 1/2004	Logit models single-bounded double-bounded	25.01 €–57.88 € per person/yr
[103]	National Marine Park and better water quality by wastewater treatment plant	Ko Chang Thailand	300 interviews at respondents' homes 4–5/2013	Tobit	5.57 € per household per month as tax

Table A3. *Cont.*

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[104]	Conservation of Marine National Park	Ko Chang Thailand	409 on site interviews 1–3/2013	Single- and double-bounded	6.72–11.1 € locals for entrance ticket WTP of tourists twice of locals
[105]	Marine Parks and reduction of tourism damages	Payar, Redang and Tioman Malaysia	338 on site interviews	Single and double bounded choice Logit and Probit	13.02 €–14.04 € entrance ticket
[106]	Marine Park	Pulau Redang and Pulau Payar Malaysia	215 in Pulau Redang and 153 visitors in Pulau Payar 4–7/2007	Logit Probit	1.67 € locals 2.26 € foreigners (Pulau Redang) 1.54 € locals and 1.69 € foreigners (Pulau Payar)
[107]	National Park	Cenderawasih Bay Indonesia	71 tourists	Ordinary Least Square	0.15 € locals 0.39 foreigners
[108]	Conservation of National Park	Donana Spain	663 face-to-face interviews 2–10/2004	Probit Ordinary Least Square	23.9 € annually as donation
[109]	Recreational value of Park	Al-Prespa Albania	134 visitors 7/2013	Probit and Tobit models	1.4 €–1.6 € per person
[110]	Two National Parks	Evros Delta, Axios-Loudias-Aliakmonas Delta Greece	501 personal interviews 6–12/2010	Probit, Tobit heckman Double-hurdle	4.40 €–5.18 €
[111]	Coastal zone quality improvements	Pagasitikos gulf, Volos, Greece	400 personal interviews	Principal component Cluster analysis Logistic regressions	23.06 € per person as a lump sum payment
[112]	National Park	Eastern Macedonia and Thrace Greece	114 individuals summer 2006	Ordinary Least Square Factor analysis	94.08 €/yr 7.84 €/month (tackling protest)
[113]	Recreational value of lake Mokoan	Victoria, Australia	personal interviews	Maximum likelihood method	2.89 € per person/yr (open-ended) 3.93 € per person/yr (dichotomous choice)
[114]	Conservation and restoration of a wetland	Pekapeka Swamp, New Zealand	958 households 11/2008–1/2009	Logistic regression Ordinary Least Square	38.51 € per family/yr 26.62 € per family/yr For 5 years

Table A4. CVM studies in wildlife parks.

References	Preservation of	City Country	Sample Size/ Time Period	Econometric approach	Mean WTP
[115]	Recreational value of Jungle Park	Chitgar Iran	140 visitors	Logit model	0.068 € per visitor for entrance ticket
[116]	Recreational value of Jungle Park	Lavizan Iran	125 persons, 106 were analyzed	Logit	0.081 €
[117]	National Park	Bhitarakanica India	400 on site interviews 11/2010 and 3/2011	Ordinary Least Square	0.48 € for entrance ticket
[118]	National Park	Chitwan Nepal	40 locals, 48 visitors from South Asia and 222 international 5–12/2011	Logit	16.81 € for international, 13.17 for South Asia and 2.49 € for locals visitors for entrance ticket
[119]	Recreational benefits of National Park 2 improved scenarios of satisfaction	Horton Plains Sri Lanka	352 visitors	Ordinary Least Square Probit	0.63 € and 0.91 € for 1st and 2nd scenarios for an entrance ticket

Table A4. *Cont.*

References	Preservation of	City Country	Sample Size/Time Period	Econometric Approach	Mean WTP
[120]	Minneriya National Park and view of elephants	Sri Lanka	407 face-to-face interviews	Probit model	0.82 € for entrance ticket
[121]	Preservation of Yankari Game Reserve	Nigeria	346 tourists Face-to-face interviews 2–4/2014	Logit Probit	77.9% would pay for preservation
[122]	Preservation of National Park	Semien Mountain Ethiopia	250 households from 6 villages around the park	Probit model	0.67 € per household/yr

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