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Valuing cultural heritage: the social benefits of restoring and old Arab tower

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Abstract

Cultural heritage protection is a key issue around the world today. In this paper, the contingent valuation method has been applied to obtain the social benefits that stem from the restoration of an old Arab tower in the Valencia Region of Spain. Due to a current and past lack of protection, the remains of this historic monument are few. Therefore, 252 individuals were randomly interviewed. On conducting our study we distinguished between low, average, and high consumers of cultural goods. Our main finding is that the mean willingness to pay (WTP) is considerably higher for the second group. To give further credence to this observation both parametric and non-parametric approaches were employed and these yielded similar results. Finally, two equations were estimated in order to ratify the results obtained from a theoretical point of view.

Keywords: Contingent valuation; Consumption of cultural goods; Cultural heritage; Non-parametric approach; Parametric approach

1. Introduction

Spain is a country rich in cultural heritage left behind by the Arabs during their eight-century long reign. The array of monuments that compound this legacy abound. Some of them, such as the Alhambra in Granada and The Mosque in Cordoba, are famous throughout the world and are in fact World Heritage Sites. However, there are other monuments of lesser importance from an architectural point of view but which were of vital importance for the civil population in their day. This is the case, for example, of the network of watch towers that were used to warn the inhabitants of small villages of attacks coming from the mainland and from the sea. As time went by, these defensive towers became the sites of present day towns as people tended to seek out the security that such towers provided.

Today, in the Mediterranean regions of Spain, particularly in the Valencia Region, we can find numerous examples of these monuments, including the old Arab tower of Godella called the Pirate's Tower, our case in hand. This tower was supposedly built by the Arabs between the 10th and 13th centuries as a defensive tower. Unfortunately, the lack of protection by public authorities led to its destruction in the 1960s and 1970s and that of other historic monuments in Spain. In fact, it is publicly recognised by the citizens of Godella that some of the stones that were removed from the tower were used to construct stone walls used to fence off private properties.

The increase in public awareness over recent years that these kinds of monuments constitute an important part of our past, led to the Godella Town Hall supporting a contingent valuation study aimed at ascertaining people's willingness to pay for the restoration of this old tower. A total of 252 face-to-face interviews were carried out during the summer of 2002 among the citizens of Godella. By gathering this information directly from the people, we intended to estimate the existing value of this monument, given that at present it is in a complete state of ruin. However, if in the near future it were to be completely restored, this tower could acquire a somewhat different value for the citizens such as that related to its new potential uses.

The Contingent Valuation Method (CVM) elicits preferences for public goods by asking people about their willingness to pay (WTP) for them [1]. Because the elicited WTP

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values are contingent upon the particular hypothetical market described in the questionnaire presented to the respondents, this approach is called the contingent valuation method. This method presents consumers with hypothetical opportunities to buy public goods, thus circumventing the absence of a real market for them. At first glance, the CVM seems very straightforward: simply ask people about their WTP for a particular good. However, this is very misleading caricature of a state-of-the-art application, which needs input not only from economic theory, but also from several other disciplines such as sociology, psychology, statistics, and survey research [2].

The attraction of contingent valuation is that it facilitates the construction of a market in which the researcher can observe an economic decision directly related with the good in question [3]. The resulting information is more useful than a simple referendum poll since the CVM records both the direction and the strength of a respondent's preferences [4].

Although CVM's have been used extensively in environmental economics[1], its greater flexibility in comparison to other non-market valuation techniques guarantees that it can be used to value a wide range of public goods, including the reduction of risk for human health [5], tropical forests [6–8] and the benefits that stem from ozone pollution control [9] and from marine water quality improvements [10]. In the field of cultural economics its use is more recent given that the first applications date back only as far as the beginning of the 1990s [11]. Other more recent papers include [12–14] and the papers collected in Navrud and Ready [15].

This study is of obvious interest given the fact that we live in a world with limited resources, and as such the information collected from this non-market approach can be useful to ensure that the current decisions about the level of funding of our cultural heritage are indeed informed decisions. However, like any economic methodology, CVM has its limitations and it can never alone provide the final answer to any major policy issue [16].

The rest of this paper is organised as follows. Section 2 describes the case study and the survey instrument. The theoretical foundations of the CVM and the econometric analysis are presented in Section 3. Section 4 presents the theoretical validation of the results obtained and Section 5 explores the aggregation issue. The conclusions and policy implications are presented in Section 6.

2. Case study and survey instrument

Godella is a small town with just over 10,000 inhabitants in the east of Spain located very close to Valencia, the capital of the province. As a consequence of the long presence of the Arabs in Spain, a substantial number of physical reminders of that period remain. In the particular case of Godella, one of the most notable remains was the old Arab tower called the Pirate's Tower. However, as previously mentioned, this historic monument has virtually disappeared due to a lack of protection on behalf of the local government. Today, this rounded tower is largely in ruins. The local authorities, in an attempt to recover the historical patrimony of the town, are considering the possibility of restoring this old tower. Naturally, they were very interested in knowing the extent to which people would support this policy. A contingent valuation study was conducted with this intention.

In general, contingent valuation can be said to be a recent phenomenon in Spain. The first application of this technique was carried out 10 years ago when a cost-benefit analysis was conducted for a new ring road in Barcelona [18]. After this pioneer study, others followed, but mainly in the field of environmental economics. With respect to the valuation of cultural heritage in Spain, to our knowledge only one previous paper can be mentioned [19]. This study provided an economic valuation of a museum in Valladolid (Spain) using a non-parametric approach.

After the initial pre-test stages, the final survey took place in the summer of 2002. The structure and wording of the questionnaire was based on the NOAA panel recommendations for CVM studies [20]. A sample of 252 inhabitants from Godella was personally interviewed in the respondents' homes following random routes[2]. The survey was carried out by a market research consultancy and a stratified sample was elaborated by establishing quotas according to the population's demographic structure. Mitchell and Carson [21] argue strongly in favour of personal interviews because the control of the interview situation is argued to be a significant advantage over the less controllable mail survey. However, face-to-face interviews are very expensive and in some cases can be limited by funding[3]. Convenient methods of sampling (e.g., stopping people in shopping malls) ought to be regarded as unacceptable for final contingent valuation results, since they are likely to omit types of people found in the general population, but not often found in malls [23]. The population surveyed was limited to the adult population over 18 years old (the minimum age of a Spanish voter), in the four areas in which Godella is divided. The weighting assigned to each area in the final sample is the same, given that there were no significant differences in the population nor in other relevant variables.

The questionnaire was divided into three sections. The first of these contained questions relating to the knowledge and attitudes of the respondents towards cultural heritage protection in general. Respondents were also given a description of the intended Pirate's Tower restoration project by the Godella

[1] See Carson [17] for a comprehensive review of the bibliography.

[2] The response rate obtained was 60.6%, which we consider acceptable given that in Spain people are not as used to being interviewed about policy issues as people in other countries are. In fact, they often distrust survey processes.

[3] Ironically, learning about WTP is fairly cheap, but documenting it with personal interviews, probability samples, and high response rates is very expensive [22].

Town Hall. The survey results provided evidence of a substantial lack of previous knowledge of this public good. Fifty percent of all respondents reported that they had heard nothing about the project. In addition, and for only half of the sample, there was a paragraph included in the text reminding the respondents that a plaque with the names of those who contribute to the restoration of the tower will be placed close to it for the benefit of future visitors. This text was introduced in the questionnaire in an attempt to find out if this fact would have any influence on the WTP declared by the respondents. The regression results, however, showed that this variable was not significant at all.

The second section focused on valuation questions. Here, a verbal description of the public good under valuation was accompanied by visual aids in order to facilitate a fuller understanding of the valuation scenario. Visual aids play a vital role in holding the respondent's attention during the presentation of a relatively long CVM scenario [24]. So, two different pictures were shown to the respondents. The first one, taken recently at the location of the tower, showed its current state of ruin where only a few stones remain from the original tower (see Fig. 1). The second one closely represented a picture taken in 1958 when the tower was in more or less in its original state, thus depicting the end result of the intended restoration process (see Fig. 2).

The method of payment chosen was a voluntary and individual donation to a special trust fund responsible for carrying out the restoration work during the scheduled execution period of 2 years (2002–2004). While voluntary contribution mechanisms are subject to criticism [25], we used this method of payment rather than a mandatory tax because it appeared to be the most neutral in Spain, as shown in previous studies [26]. Moreover, some previous research quoted in this paper related to the valuation of cultural goods also preferred the use of this type of payment [27,28]. In any case, as Champ et al. [29] points out, donations can be interpreted as lower bounds on Hicksian values. It is also important to remind respondents of the date when the public good will be completely restored, since this reinforces the credibility of the hypothetical market and, at the same time, allows respondents to judge whether the time span is relevant to them or not [30].

Fig. 1. Current state of ruin of the tower. Some stones remain.

Fig. 2. State of the tower before its complete destruction. Picture taken in 1958.

The elicitation method chosen was a dichotomous choice question, followed by an open-ended question in order to obtain the maximum WTP. Based on the results obtained in the pre-test with the focus groups and in the pilot study—where an open-ended question was used—four different bids were established: 9, 15, 30, and 72 €. Given the recent introduction of the Euro in Spain, the bids in euros were accompanied by their equivalent in pesetas in order to facilitate a better understanding of the proposed amounts. Of the 252 people interviewed, 81 (32%) gave protest responses[4], basically because they believed that the cost of restoring the tower might be borne by the local government (56% of the respondents that protested).

The survey concludes with demographic and economic questions about the respondents and their households: their sex, their birth year, their income before taxes, how much education they have completed, how many people they normally live with, whether or not they belong to a cultural association and their consumption of cultural goods (theatre, classical music concerts, and visual exhibitions in general).

[4] To detect this type of response, two types of questions were included in the questionnaire in an attempt to determine firstly, why people refused to take part in the hypothetical market and secondly, why they gave a zero or negative value, that is, why they were not willing to pay [31].

3. Theoretical framework and econometric analysis

3.1. Theoretical framework

The survey instrument used elicited respondent's willingness to pay for the restoration of the old Arab tower. Therefore, to explain the welfare measures that have been empirically estimated, consider the following indirect utility function for a representative individual:

$$V = U(Y, S, Q) \tag{1}$$

where Y is their income, S a vector of the socio-economic characteristics of the individual (age, education, etc.) and Q the current state of the tower. Consider now a local policy that restores the tower from its current state (Q_0) to its original state (Q_1). Then, the welfare measure involved is given by the next equation:

$$V(Y - WTP, S, Q_1) = V(Y, X, Q_0) \tag{2}$$

where WTP is the amount a respondent would be willing to pay to secure a welfare gain as a result of restoring the tower to its original state, that is, the change from Q_0 to Q_1. This amount corresponds to the Hicksian compensated variation for the proposed change.

Now, following the seminal article by Hanemann [32], if the utility function is assumed to have some components which are unobservable to the researcher and are treated as stochastic, then the individual's utility function can be written as:

$$V(Y, S, Q) = U(Y, S, Q) + \epsilon \tag{3}$$

where ϵ is a random disturbance term with an expected value of zero. When offered an amount of money A for a change in Q ($Q_0 \rightarrow Q_1$), the individual will accept the offer if:

$$U(Y - A, S, Q_1) + \epsilon_1 \geq U(Y, S, Q_0) + \epsilon_0 \tag{4}$$

where ϵ_0 and ϵ_1 are identically and independently distributed (i.i.d.) random variables with zero means. For the researcher, the individual's response is a random variable that will have some cumulative distribution (c.d.f) G_{WTP} (A). Therefore, the probability that an individual will accept the suggested cost A is given by the next equation [33]:

$$\text{Prob}\{'\text{yes}'\} = \text{Prob}(A \leq WTP) = 1 - G_{WTP}(A) \tag{5}$$

when G_{WTP} (A) is the standard normal cumulative distribution function, one has a probit model and when it is the standard logistic distribution function, a logit model is obtained. An equivalent way of defining the probability of acceptance is using Eq. (4):

$$\text{Prob}\{'\text{yes}'\} = \text{Prob}\{U(Y - A, S, Q_1) + \epsilon_1 \geq U(Y, S, Q_0) + \epsilon_0\} \tag{6}$$

3.2. Parametric estimation

The results of the estimated models are shown in Table 1. As the phenomenon, we seek to model is, of discrete nature rather than continuous (the decision of whether or not to accept the amount offered[5]) two functional forms for the WTP distribution have been assumed: a logistic and a normal one. So, a logit and a probit model were estimated, although the results are practically identical given that it is difficult to justify the choice of one distribution or another on theoretical grounds. Protest and other invalid responses were dropped from the data set, as is customary in CVM studies. The mean WTP has been calculated from the estimated coefficients. In our analysis we have distinguished between two types of individuals: low/average and high consumers of culture. To decide if an individual is a high or low/average consumer of culture, we have considered different variables. In particular, we wanted to know the number of times that the individual has attended or undertaken cultural activities in the last 6 months. The cultural activities considered were the theatre, the cinema, classical music concerts, painting exhibitions, playing a musical instrument, and reading a book[6]. So, individuals that on average have attended or undertaken each of these activities at least four times in the period considered, make up the first group. The second group consists of the rest of the individuals.

The main finding of our analysis is that the mean WTP for the individuals that we have defined as high consumers of cultural goods is considerably higher (133.1%) than the figure registered by the low/average consumers. More specifically, the mean WTP for this group is 87.99 €, while for the low/average consumers this amount is 37.74 € and for the entire sample it is 59.30 €. So, it would seem that there is a positive relationship between the WTP stated and the consumption of cultural goods, which will be demonstrated in the following section.

In order to get an idea of how much the WTP obtained is, we deemed a comparison of these figures with the money that the Regional Government is currently spending on the protection of cultural patrimony in the Valencia Region to be essential. As is shown in Table 2, the regional government spent 6.84 € per individual in 2002 on the protection of the cultural patrimony of the region. This figure is considerably lower than the expected WTP obtained from the estimated models above.

3.3. Non-parametric estimation

For comparison purposes, in this section a non-parametric approach is applied to obtain the mean WTP according to

[5] As the reader is familiarised with these binary choice models, they will know we give "no" responses a value of zero and "yes" responses a value of one. Obviously, the zero/one coding is a mere convenience. A comprehensive explanation of models with discrete dependent variables can be found in Maddala [34].

[6] For a detailed analysis of the consumption of cultural products in Spain see Lopez and Garcia [35].

Table 1
Estimated models and mean WTP by groups of consumers

	All the sample		Low/average consumers		High consumers	
	Logit	Probit	Logit	Probit	Logit	Probit
α	1.16143068	0.71945822	0.76832995	0.47875925	1.90963698	1.14682480
	(4.373)	(4.478)	(2.452)	(2.474)	(4.875)	(5.204)
β	–0.01958537	–0.01215170	–0.02035611	–0.01264107	–0.02170179	–0.01289396
	(–2.922)	(–2.942)	(–2.440)	(–2.480)	(–2.431)	(–2.416)
Mean WTP (€)	59.30	59.23	37.74	37.87	87.99	88.94
95% confidence interval	34.37 84.23	34.26 84.20	17.90 57.58	18.19 57.55	40.40 135.58	38.72 139.16
Log-likelihood	–107.6254	–107.6121	–74.8184	–74.8206	–55.7766	–55.7741
N	171	171	62	62	109	109

Note: *T*-values are shown in brackets.

Table 2
Expenditure per capita on the protection of Cultural Patrimony in the Valencia Region (2002)

Current expenditure on protecting cultural patrimony (€)	Population	Expenditure per capita (€)
28,463,182	4,162,776	6.84

Source: Generalitat Valenciana and INE (National Statistics Institute).

Table 3
Proportion of "yes" responses and estimates of the probability of acceptance

Bid (€)	All the sample		Low/average consumers		High consumers	
	Proportion of "yes" responses	Ayer's estimates	Proportion of "yes" responses	Ayer's estimates	Proportion of "yes" responses	Ayer's estimates
9	35/45	0.77800000	8/15	0.57100000	27/30	0.90000000
15	33/46	0.71700000	8/13	0.49357142	25/33	0.78100000
30	24/42	0.57099999	6/20	0.30000000	18/22	0.72889473
72	17/37	0.45900000	3/13	0.23100000	14/24	0.58300000

Kriström [36]. This approach is related to utility theory using a first order argument since the probabilities of acceptance will depend only on the value of the bid. It is based on the algorithm of Ayer et al. [37] and enables the mean WTP to be found. It also offers certain advantages over other parametric approaches as this estimator is easier to calculate and more reliable than a poorly specified distribution function. This algorithm states that if the proportion of "yes" answers to increasing bids is monotonically non-increasing, then the sequence provides a maximum likelihood estimator of the probability of acceptance.

Table 3 shows the proportion of positive responses for each of the four proposed bids and the Ayer et al. estimates of the probability of acceptance[7]. Although, we have information on the probability of acceptance at four different points, it is impossible to calculate the mean WTP unless two simplifying premises are assumed. Firstly, we must assume that the linear interpolation is a suitable approximation of behaviour between the four known points, although there are other alternatives as have recently been shown by Boman et al. [38]. Secondly, we must also assume, rather arbitrarily, that $\pi = 1$ when $A = 0$ and that $\pi = 0$ when $A = A^*$, that is, if the bid is zero, then the probability of accepting the payment is unity and if the price is A* then the probability is zero since the price is understood to be too high and, therefore, no one will accept it. For A* one value or truncation point was considered: 112 €, which is the highest value declared by the respondents in the open-ended question used in the pilot study. Once the empirical survival function of WTP has been obtained by linear interpolation, the mean WTP can be calculated as the area bounded by this function and it ranges from 31.98 € for the low/average consumers of cultural goods to a maximum value of 64.13 € for the high consumers (see Table 4)[8]. As we can see, these results are very similar to those obtained by applying the parametric models since the mean WTP values are quite similar, that is, the mean WTP is already greater for the high consumers of culture. This gives us, to some extent, an idea of how robust the results obtained are.

Table 4
Estimated WTP using Ayer's algorithm

	Mean WTP (€)
All the sample	52.95
Low/average consumers	31.98
High consumers	64.12

[7] While one expects the proportions to be strictly decreasing in A in a large sample survey, this might not be true in small-scale experiments, as is the case for low/average and high consumers of cultural goods. Therefore, if $\pi_i \leq \pi_{i+1}$, these proportions are replaced by $(Y_i + Y_{i+1})/(n_i + n_{i+1})$ where Y_i is the number of yes-answers in group i. The procedure is repeated until the sequence is monotonic in A (see Kriström [39] for more details).

[8] All the calculations were made dropping the protest responses.

4. WTP determinants

4.1. WTP determinants from the dichotomous question

The construction of an equation that predicts WTP for the good, with reasonable explanatory power and coefficients with the expected signs, provides evidence of the proposition that the survey has measured the intended construct [40][9].

The final statistical model estimated is presented in Table 5, where the dependent variable captures whether or not a respondent was willing to pay the amount asked during the interview. As previously mentioned, one represents a ″yes″ response and zero a ″no″ response. The interpretation of the regression results suggests that the negative sign of the BID variable denotes that the more euros the respondent was asked to pay, the lower the probability was that the respondent would vote for the project in question. The INCOME variable measures the personal net income in six different intervals of 600 € ranging from a minimum value of 0 € to a maximum value of over 2400 €. Its positive coefficient—as expected—indicates that the higher the respondent's income, the higher the probability that the respondent would vote for the public good. This variable is significant at the 0.01 level.

The AGE variable takes a value of one if the respondent is over 50 years old, so its negative sign means that the probability of a "yes" response decreases with the age of the individual interviewed. Two possible explanations for this sign are that the older a person is, the lower the expectations of future consumption of this public good are, or the different education and values of older people.

The variable LOW_RESIDENCE was defined as a binary variable that takes a value one if the respondent stated that he had been living in Godella for less that 20 years and zero for all other situations. Therefore, the positive sign of its coefficient means that the probability of acceptance is lower for these individuals in comparison with people that have been living in Godella for longer and probably have deeper roots in the community.

ECOLOGIST is also a dummy variable that takes a value of one if the individual stated that he/she belonged to an environmental protection group. The negative sign of this variable is contrary to the results found in other contingent valuation studies where environmental goods have been valued. Usually individuals that describe themselves as "strong environmentalists" are, all other things remaining equal, willing to pay significantly more for a given level of environmental improvement than those who describe themselves otherwise [42]. However, in our case we are valuing a cultural good so the result obtained is acceptable.

The variable PARK was defined as the subjective value given to the restoration project on a scale from 0 to 10 including the construction of a park surrounding the tower. So if the respondent stated a value higher than seven this variable takes a value of one and a value of zero in the rest of cases. The positive sign means that these individuals are more willing to accept the bid offered because they understand the advantages that stem from the provision of new recreational facilities such as an urban park.

Table 5
WTP determinants: logit regression model of probability of a "yes" response

Variable	Coefficient	*T*-statistic
CONSTANT	–1.536185087	–2.627
BID	–0.445276428	–2.933
INCOME	0.492489122	3.986
AGE	–0.782666811	–2.147
LOW_RESIDENCE	–0.708172410	–2.015
ECOLOGIST	–1.150368023	–1.734
PARK	1.409564609	4.242
PROTECTS	0.668251386	1.902
HIGH_CONSUMER	1.072014943	3.032
Log-likelihood = –124.6539,		
Pseudo R^2 = 0.477		
% Correct predictions = 74.2		
N = 252		

The pseudo R^2 computed is that proposed by Veall and Zimmermann [49].

The last variables considered are PROTECTS and HIGH_CONSUMER. The first one takes a value of one if the individual considered that Godella Town Hall does in fact protect the cultural patrimony of the town. So it seems quite logical that these individuals are more willing to pay than the rest, given that they share similar concerns as to the cultural patrimony of the town with the local authorities. The second variable was previously defined in Section 3 when we distinguished between high and low/average consumers of cultural goods. The positive sign of this variable is fully consistent with the higher values of the mean WTP found for these individuals. Indeed, the probability of the bid offered being accepted is higher for this group of respondents than for the rest and, as such, this result reinforces the idea advanced in Section 3 that there is a positive relationship between the mean WTP stated by the respondents and the consumption of cultural goods.

Given that the estimated coefficients do not have a direct economic interpretation, we have estimated the marginal effects calculating the partial derivatives of probabilities with respect to the vector of the explanatory variables considered. They were computed at the sample means of the explanatory variables so they can be interpreted as the effects of changes in one of the independent variables on the probability of accepting the proposed bid for the representative individual of the sample. For example, a 600 € increase in income leads to a 0.118 increase in the probability of a yes vote, all else holding constant. In the same way, if the individual is defined as a high consumer of cultural goods, this will result in a 0.257 increase in the probability of a yes response[10] (see Table 6).

[9] Another test for checking if the results conform to the predictions of the economic theory is if the percentage of respondents willing to pay a particular price falls as the price they are asked to pay increases [41]. In our particular case, this percentage decreases with the price offered, as shown in Table 6 for ″all the sample″.

[10] In this case, as in the rest of the dummy variables considered, the partial derivative is for a discrete change from 0 to 1.

Table 6
Marginal effects (partial derivatives of probabilities with respect to the vector of characteristics)

Variable	Coefficient	*T*-statistic
CONSTANT	–0.3694929675	–2.685
BID	–0.1071007069	–2.946
INCOME	0.1184566031	4.007
AGE	–0.1882519788	–2.156
LOW_RESIDENCE	–0.1703341137	–2.013
ECOLOGIST	–0.2766938035	–1.737
PARK	0.3390374080	4.282
PROTECTS	0.1607320561	1.902
HIGH_CONSUMER	0.2578478242	3.019

4.2. WTP determinants from the open-ended question

Here, the same process followed in the dichotomous question is used for the open-ended question. A tobit regression model was used in this case because the WTP values were not normally distributed: they are truncated at zero and there were a large number of zero WTP values. In our case, if $WTP^* = \beta X + \epsilon$, where WTP* is a latent variable with $\epsilon \sim N[0, \sigma^2]$, the observed variable WTP is censored with respect to WTP* in that:

$$\begin{aligned} &WTP = WTP^* \text{ if } WTP^* > 0 \\ &\text{and} \\ &WTP = 0 \text{ if } WTP^* \leq 0 \end{aligned} \tag{7}$$

The estimated values of the parameters which maximise the likelihood function appear in Table 7. They generally confirm the signs and significance already observed in the logit model. Thus, the WTP stated was higher for individuals who are defined as high-consumers of cultural goods. The variable INCOME again presents a positive and significant coefficient as expected. However, the positive sign of the variable BID shows that the open-ended WTP values are not independent of the bids that were randomly distributed among the respondents. This phenomenon is called the anchoring effect and has been widely reported in CVM literature [43].

Another variable that is worth commenting on is PRIOR_KNOWDLEGE which takes a value of one if the respondent had a great prior knowledge of the restoration project and a zero value in the rest of situations. The positive sign of its coefficient shows that the individuals who were familiar with this public good have a higher WTP than the rest of the individuals [44].

Table 7
WTP determinants: tobit regression model

Variable	Coefficient	*T*-statistic
CONSTANT	–59.70496413	–6.847
BID	3.983750575	1.980
INCOME	10.24695449	5.642
PARK	18.85932516	3.955
PROTECTS	12.60457628	2.548
HIGH_CONSUMER	14.26211594	2.922
PRIOR_KNOWLEDGE	17.72768597	3.208
Log-likelihood = –716.6181, $N = 252$		

5. Aggregation

Aggregation is a controversial issue in economics. In order to use the findings of a contingent valuation study to obtain an estimate of aggregate individual WTP amounts for a specific quantity of a public good, it is necessary to make several assumptions, which are potentially troublesome. Firstly, as noted by Jakobsson and Dragun [45], a key question is whether values should be aggregated over individuals or over households. Although the valuation question sometimes calls for individual WTP, some people consider household income as their budget constraint, therefore if we want to be conservative, as recommended by Arrow et al. [46], the estimates should be aggregated over the number of households. Secondly, between the two models considered we have to choose the one which best suits our data. However, given that the mean WTP obtained in both models for the entire sample was very similar we believe that this fact does not represent a serious problem. Finally, it is necessary to choose a weighting scheme for individuals. As WTP involves an income constraint, the standard weighting scheme is to assume that the current distribution of income is acceptable from a social welfare standpoint [47].

So, if we multiply the mean WTP by the two scheduled payments, and by the number of households in Godella (3736), we obtain that the social benefits generated by the restoration of the Pirate's Tower ranges from a minimum value of 395,642 € to a maximum value of 443,089 € depending on whether the mean WTP considered is 52.95 or 59.30 €. The estimated cost of restoring the tower is 120,202 €, a figure which is considerably lower than the social benefits estimated by the CVM approach. As the benefits received by the population considered clearly exceed the costs borne by them, the restoration of this architectonic monument appears to be desirable for both the local authorities and their constituents.

6. Conclusions and policy implications

This paper has used the CVM approach to determine how much residents in a medium-sized town are willing to pay for the restoration of an Old Arab Tower, highlighting the utility of this methodology in the field of cultural economics. While there is always a central role for expert opinion in deciding which types of cultural heritage goods should receive attention, information about the general public's preferences concerning such decisions gathered from a CVM study is a useful complement to such expert judgement [48].

One of the main findings of this study is that it seems that the mean WTP is affected positively by the consumption of cultural goods. In fact, we have split the sample in two parts and we have demonstrated that those individuals defined as

high consumers of cultural goods exhibit higher mean WTP values than the rest of the individuals in both of the approaches used (parametric and non-parametric). In addition, this result has been reinforced by the estimation of a logit model with demographic variables where the probability of a "yes" response is significantly correlated with the consumption of cultural goods, income, the bid offered and the age of the respondent among other variables considered. Similar results have been obtained applying a tobit model to the WTP stated in the open-ended question.

Another interesting finding is that people are willing to pay much more than the current expenditure per capita devoted to the protection of cultural heritage goods in the Valencia Region. Thus, it would seem reasonable to argue for a greater level of support from the public administration for the protection of cultural heritage goods, given people's high level of appreciation of their cultural benefits.

Finally, a simple comparison considering the non-market nature of the benefits estimated has proven that, in this particular case, the benefits clearly exceed the projected costs of this restoration project.

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