Retrieving the local historical heritage. A nonparametric approach in the contingent valuation method.

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SUMMARY.

There is a growing interest in cultural heritage impact research. The reason is the cultural heritage tends to settle as a relevant input of local development and can contribute as a backbone in multiple socio-economic aspects on the territory where they are located. Through a series of public and private decisions about which and how heritage preserve, we can find results that contribute positively to the transformation of municipalities, through local incentive, capable of being activated through cultural tourism. For this purpose is necessary to design a cultural an investment policy able to combine some cultural and leisure facilities with recovery / protection processes of assets.

Through public goods valuation techniques, we can make an approach to the social value that would grant for them certain society, so we can know the attraction to it on the group as well as the expected response. Using the methodology of contingent valuation, we would realize the calculation of the maximum Willingness To Pay (WTP) expressed by that social group. Today, many researchers are in favor of using dichotomous formats, when performing contingent valuation studies.

In order to obtain a measure of welfare (mean WTP), we must assume that the distribution function of the WTP has certain distribution function, as we did when we used nonparametric methods (probit - normal distribution). Kriström (1990) posits the existence of a (non-parametric) estimator based on the Ayer et Al theorem (1955), simple and quick to use, able to present a reliable response of the mean WTP. We have performed a case study on Contingent Valuation (CV), which applies this methodology to assess an element of the local heritage (Arab Tower in Bofilla village).

Keywords: Historical heritage, Contingent Valuation Method, nonparametric estimation, public good.

1. INTRODUCTION.

Recovery and protection of historical heritage, has become in recent years an important issue for the local economy, since it has become and input engine for economic development, through different ways (CHCFE, 2016).

- Increasing attractiveness of cities and rural areas.
- Providing a unique identity and territorial narratives for effective marketing strategies aimed at developing cultural tourism and attracting investment.
- Creating employment covering a wide range of types of job and skill levels
- Cultural heritage is also an important source of creativity and innovation, generating new ideas and solutions to problems, and creating innovative services
- Cultural heritage has a track record on providing a good return on investment and is a significant generator of tax revenue for public authorities
- Cultural heritage contributes to the quality of life, providing character and ambience to neighbourhoods
- Cultural heritage provides an essential stimulus to education and lifelong learning, including a better understanding of history as well as feelings of civic pride and belonging, and fosters cooperation and personal development.

It is not easy, to find a definition of heritage that satisfies consumers and researchers alike, and therefore in Spain it is not surprising the use of the Law of Spanish Historical Heritage[1] (PHE) in order to look for a proposition that clearly and accurately expose this concept. In this legal text we find a description of PHE in its Article I, paragraph 2, which states that *"integrate the PHE real estate and moveable objects of artistic, historical, paleontological, archaeological, ethnographic, scientific or technical interest. It also forms part of the documentary and bibliographical heritage, archaeological sites and areas as well as natural sites, gardens and parks with artistic, historical or anthropological value "*. Obviously such legal standard, enacted in 1985, says nothing specifically about the intangible heritage, a concept defined in the Convention for the Safeguarding of Intangible Heritage (Paris, 2003)[2]. Anyway, this new category of cultural heritage was already begun to take shape on the 90s (last s. XX), and there are some authors (Cejudo, 2014) indicating that the LPHE makes a clear

[1] Law 16/1985 of June 25 Spanish Historical Heritage (LPHE). consolidated text. Last modified: December 30, 2014, http://www.boe.es/buscar/pdf/1985/BOE-A-1985-12534-consolidado.pdf.

[2] Although Istanbul Declaration (2002) includes some thematic comments on intangible heritage.

reference on intangible heritage as it speaks about ethnographic heritage (art. 46 and 47) and documentary heritage, archives and libraries (art. 49 and 50).

However, Benhamou (2003: 626) summarizes the concept heritage considering that it is a *social construct whose limits are unstable, fuzzy and that extends in two directions: new historical additions and expansion of the concept heritage to include new categories* (eg, the concept of heritage has been extended into new categories "historic gardens, industrial heritage, intangible heritage"). Under this broad perspective, since the society has considered the heritage as an engine of territorial development, its analysis is no longer exclusive of historians, artists and architects, and happens to be shared with legal experts and economists, which may have an influence on the importance that this historical legacy has over the local economy.

A large part of the historical heritage assets which currently exist, were made for man to be used. Therefore, one of the priorities that we set with the different recovery and protection techniques and methodologies of such property, it is to put in value the cultural property and promote its use and management again (Montagut, 2015).

As we have already mentioned, cultural heritage could be converted into a drive motor of the economy in a territory, generating employment and wealth, which could cause on certain areas some improvements in its financial and social indicators. Simultaneously, the society should establish measures to protect that legacy, so that it can be enjoyed by future generations. All this has made economists to express a degree of interest on heritage valuation in order to ensure its efficient and correct management.

However, in many cases the loss or deterioration of cultural heritage is not recoverable or at least very difficult and extremely expensive. Examples are the great Buddhas of Bamiyan (V and VI Century) destroyed in 2001 by the Talibans; the destruction of archaeological sites in the cities of Nimrud and Hatra; the ancient statues of Museum and Library of Mosul and Nineveh Provincial Museum, all between February and March 2015 and by social or religious causes. Another cause are the forces of nature: a earthquake with intensive aftershocks between 7.8 and 8.1 on the Richter scale), razed the city of Kathmandu (Nepal), in April 2015, destroying important heritage assets constructed between ss. XII and XVIII. Because all these causes, has been used to justify the creation of certain copies to safeguard this heritage (b.p. Lasceaux caves in France and Altamira in Spain).

On the other hand, as a complement to the justification for the copying of certain cultural heritage, Kriström (1995) and Del Saz (1999), have argued a number of reasons

about why we value these goods and promotre a more rational and efficient use of historical heritage, thereby facilitating the intervention of collective action interested in protecting and disseminating knowledge of these cultural assets.

2. THE CONTINGENT VALUATION METHOD.

Contingent Valuation Method (CVM) is an operating procedure that allows us to establish "a satisfactory value" to public goods related to cultural heritage. These goods are difficult to assess for its special characteristics as unique and irreproducible goods, and therefore markets can not satisfy their need for provision. Reproducibility does not mean anything to put in the hands of consumers, mere copies without any historical or cultural value, and that no sales transactions that may establish equilibrium prices.

It´s important to have measures and tools based on different disciplines concerned to study the Cultural Heritage in oder to establish priorities among these goods so, knowing which are the most valuable or important, we know the resources at our disposal in an efficient way. It´s not an easy task.

The Contingent Valuation Method (CVM) aims that people declare their preferences regarding a concrete public good, in our case belonging to the local historical heritage. It is a direct method of valuation, through which individuals manifest their Will To Pay (WTP) on which we will apply our study to draw the main conclusions.

The advantages of application of MVC are superior to the disadvantages. Among the first, we can highlight the possibility to include options and "no use", the applicability to almost all cases (not all methods have it), the ability to measure the effects on users and non users (Riera, 1994) or its friendly use compared to other methods. The main drawback is attributed to the appearance of certain bias (but other methods of measurement, also have this problem), and also the caution that we must takein order to consider the results produced through this methodology (Azqueta, 1994, Riera, 1994; Del Saz, et al, 2000).

In this sense the MVC methodology should be understood as a synthetic translation exercise of all these different sources into a monetary value that allows us to view, sort, and compare our collective preferences. Thus the relevance of the economic approach can not be questioned, despite the misgivings of some cultural agents involved in the preservation of the assets. Economy is a science focused on decision making about the allocation of resources in a framework of shortage. The techniques that we propose in this paper allow approaching the complex exercise of estimating the costs and benefits

of preserving the assets. The theory of public goods resolves the first question by stating that we must allocate resources protection heritage to the point where the marginal social benefit is lower than the marginal cost of providing such public goods (Rausell and Montagut, 2010).

In studies of CV, one of the formats applied it is called the Binary Format or Referendum. This technique refers to the way in which the hypothetical market arises, in order to estimate the WTP of individuals as a proxy to measure the economic benefits of a certain cultural policy. After selecting a representative sample of the population, it is divided into equally representative groups and are asked the referred question to each group with a different amount of the price vector that we calculated in the initial testing phase. In our study was formulated in the following terms *"would you be willing to contribute with an economic fee of thirty (30) annual euros (5,000 pesetas, approximately the equal amount you pay for a men's shirt) over the next two years (must be aware that this amount would be an increase of your local taxes IBI around 11.2% ?"*. For each group, this value was replaced by another vector price indicated {3 €, 6 €, 9 €, 18 €, 30 € and 60 €}, and a reference to some private good to those who would have to resign if opting for the public good. In the survey we indicate that the payments would be made for two years. From the answers we get the users WTP through the "non-parametric" approaches that we quote.

Additionally, we have an answer that gives us information of the population interviewed and which is derived from the distance of Bofilla Tower to Bétera, just over 3 kilometers. This makes many people interviewed did not feel the Tower as a legacy of their past, and probably therefore its WTP has been skewed to the downside. In the questionnaire we asked if they would revise upward its "willingness to pay" in case the tower was within the population, as part of its urban architecture From the whole sample there are a 28% of positive answers and 72% of negative ones. From the 28% which would revise upward its WTP, a 24% were already consumers who had expressed a positive WTP for the preservation of cultural property. However, the remaining 4% had suggested a WTP = 0 (for whatever reasons they were not willing to pay anything for the conservation of this tower). From these results we can conclude an interesting link between the proximity of the cultural object and the identification of inhabitants with their local heritage (Montagut, 2015).

3. A CASE STUDY: THE BOFILLA TOWER

About three kilometers east of Bétera, we find this defensive tower that was erected in the Islamic period (probably built in the late s. XI) This tower along with other similar structures located at 20 Km distance from Valencia ("Tower of Paterna", “Espioca Tower” in Picassent, "Tower of Benifaió" and Alzira watchtower) were part of the defense belt towers of Valencia city. These are a series of towers located on elevated terrain with great visibility over the sea, with great capacity to alert about enemies to the city and the surrounding villages.

Figure 1. View of the Bofilla tower in Bétera

Source: Jordi Durá.

In 2010 it finished the restoration of the Bofilla tower with a total budget around 460,000 euros, which date to the year that the CV exercise was conducted (2014) has an aproximately value of 480,700 €. This is a very important budget for a small town like Bétera and a good indicator about the relevance of the Tower for the local population. The recovery was conducted with great care, combining material authenticity and original construction and respecting the principles of neutrality and minimal intervention required by law (Miletos; Vegas; López, 2011).

The main criterias for restoration were its good conservation and accessibility and the current dearth of historical real estate assets. It´s considered a good element of study of historical time and system construction employees. After the restoration, the tower, along with other nearby archaeological sites, has been included in tourist itineraries of Betera, being a center of attraction for many tourists.

The main characteristics of the tower are: an elevation ranging between 16.5 and 18 meters, and square with 6.5 m. side at the base and 5.2 m. aside at his coronation. The Towert formed the main element of the defensive structure of Islamic farmstead that probably originated the current town of Bétera. The Tower is one of the emblematic architectural elements and it is located between the districts of L'Horta Nord and Camp de Turia, specifically between the towns of Bétera and Moncada. This is one of the few examples in Valencian Region that currently maintained in such good condition, including the remains of the Moorish surrounding farmstead, as we can see in Figure 1. This construction was made probably between the XI-XIIth centuries, and was abandoned in the middle the fourteenth century when the Calatrava Order Bétera decided to move to Bétera he low remaining population in the farm, after the expulsion of the Moorish and the Black Death epidemic of s. XIV, which reduced more than one-third the population of Europe.

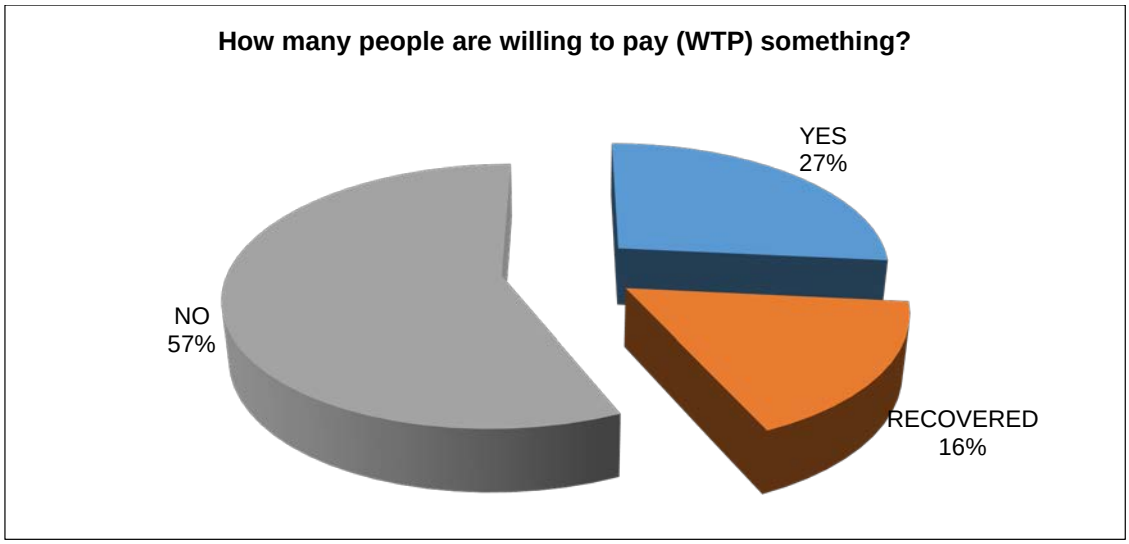
3.1. MAIN CHARACTERISTICS OF THE SURVEY

For the design of the study case survey, we take a random sample of 59 people interviewed between April and August 2010. A question about the Willing to Pay (WTP) was asked in open format, so the respondent could answer with the figure more conformed to it. From the results obtained in this sample, we set the price vector {3 €, 6 €, 9 €, 18 €, 30 €, 60 €} and the final survey for the experiment.

A total of 339 surveys were made during 2014 among the population. We remark briefly some descriptive analysis issues because their incidence on the WTP.

A first interesting result is about how many people are willing to pay something for the recovery of the cultural history.

Figure 2. How many people have a positive WTP?

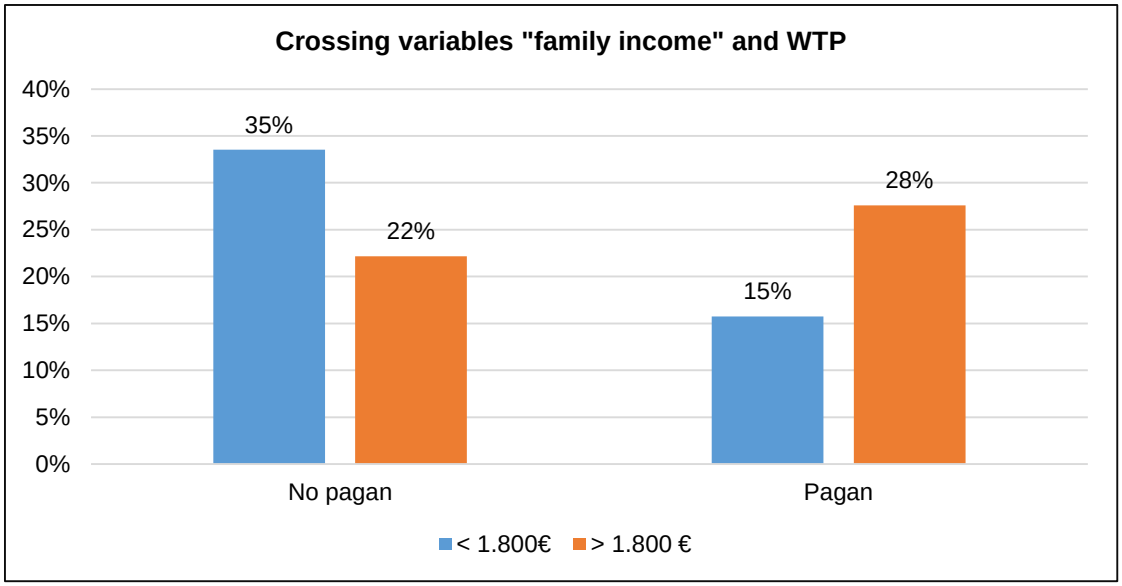


Source: Compiled from data obtained from the survey.

People who answered directly "yes" to the quantity offered were 27% of respondents, while the rest answered "NO" to pay. From these last ones, a 16% will indicate later through other questions that they would pay a lower amount than the indicated in the questionnaire (Figure 1).

A second important question to consider is to know what happens when we cross the variables "family income" and "WTP".

Figure 3. Crossing the variable "family income" and WTP



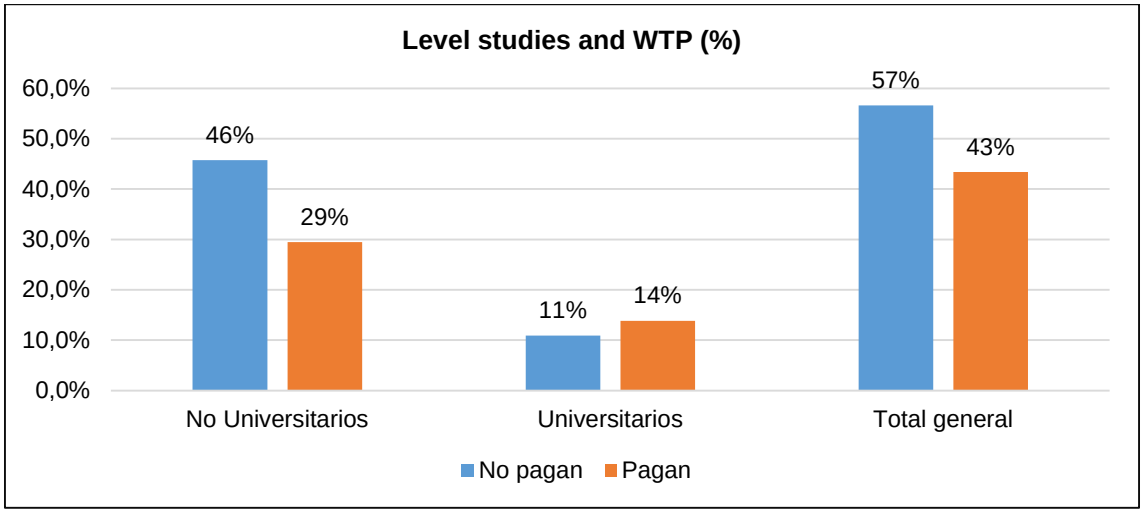
Source: Compiled from the results of the survey

Regarding the family income, the population has been divided into two different groups. In the first group the monthly net income is less than 1,800€ per month. In the second group the monthly net income is above that amount. In the figure 2 we can observe that from the 43% of

positive WTP answers, a 28% have a net monthly income exceeding € 1,800 and the remaining, less than 15%.

We can also consider how it would affect the level of education of respondents to the survey declared WTP.

Figure 4. Crossing the variables "study level" and "WTP"

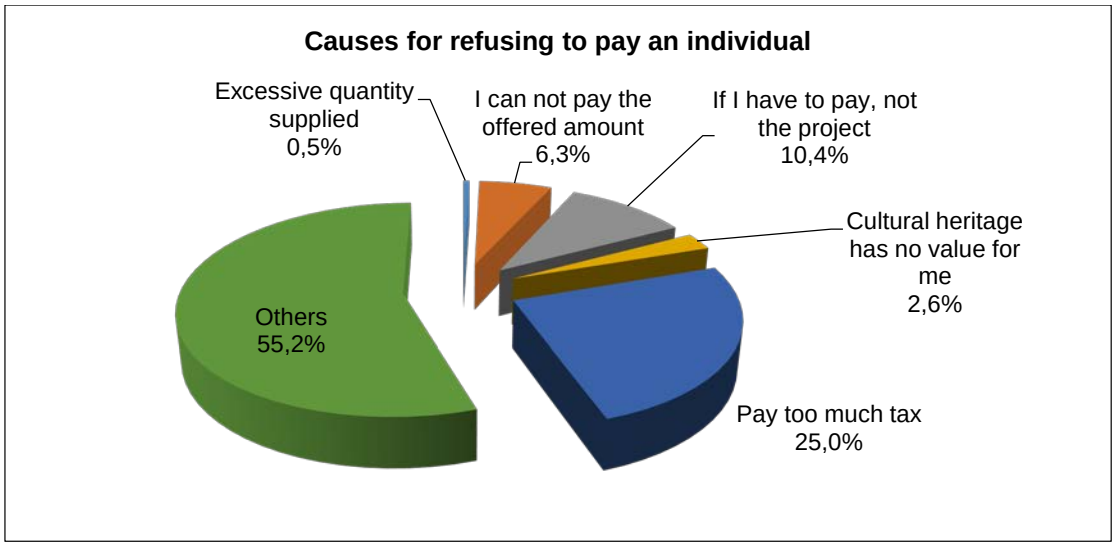


Source: Compiled from the results of the survey

If we cross the WTP variable with the Level studies variable, we have that from the 43% who expressed a positive WTP for the heritage object of the study, a 29% have "no college" studies, compared with 14% who reported having "college". From the total of 57% who expressed a non WTP, a 46% had a level of "non-university" education and an 11% with studies "university" (Figure 3).

In order to differentiate the "real zeros" and the "zeros protest" is also useful to know what are the reasons why an individual refuses to pay. For these reasons, one of the questions in the questionnaire contained six responses whose shares are listed in Figure 4. Among them was one that picked "none of the above", and in this case it was requested to the individual to describe in their own words. Because such a high percentage (55.2%), we proceeded to disaggregate them, as we can see in Figure 5.

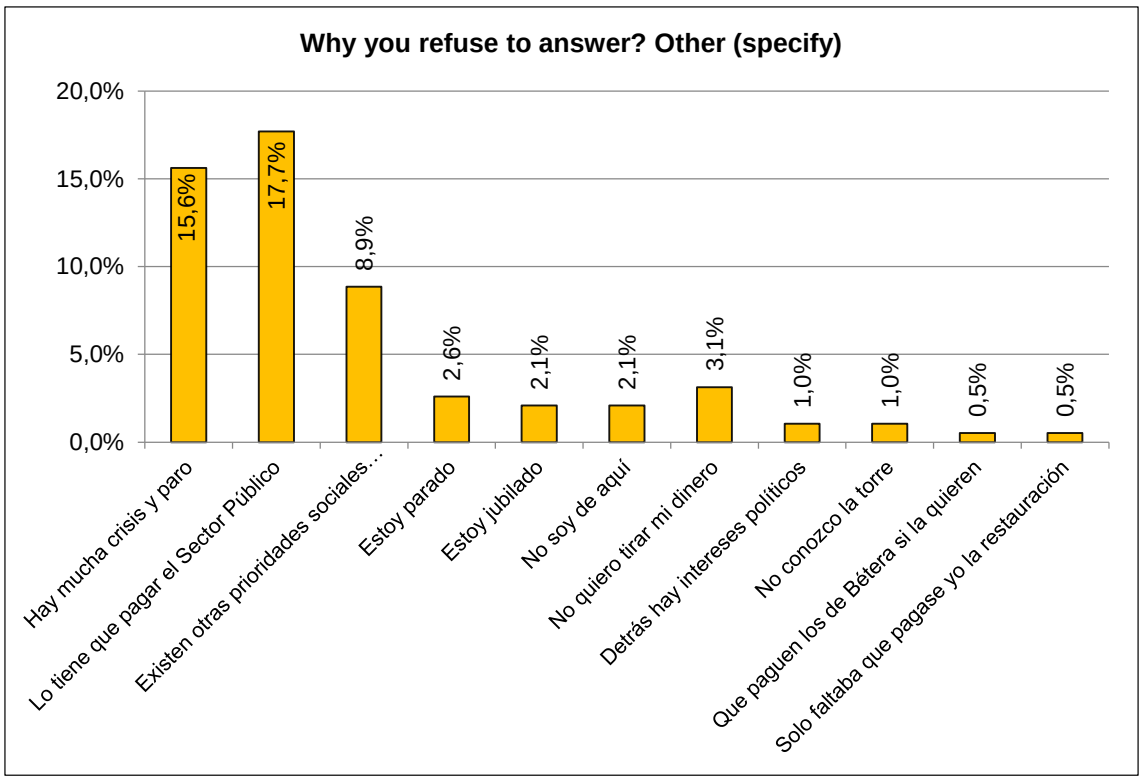
Figure 5. Causes for refusing to pay



Source: Compiled from the results of the survey

Thus, when performing said disaggregation, every of the different types expressed, are made to the same extent (%) indicated on the total of the surveyed population.

Figure 6. Causes for refuse to answer



Source: Compiled from the results of the survey

The most significant response rates are: Payment overtaxed (25.0%), it has to pay the public sector (17.7%), there is much crisis and unemployment (15.6%), if I have to pay not to project (10.4%), other social priorities (8.9%) and can not pay the offered amount (6.3%), they are now included in 16.1% other answers.

4. THE NONPARAMETRIC APPROACH.

WTP manifested by consumers, may depend on a number of observables and non observables characteristics, so we have a random variable that can be estimated by, nonparametric or semiparametric technics. In this study we will focus on nonparametric techniques, omiting the others.

Through the CVM we can obtain estimations about how the improvement of certain cultural good has an effect on its consumers (in the case of historical heritage, we refer to the restoration of concrete good and its value).

There are a number of studies of CV that use the dichotomous question format, in which respondents must answer "yes" or "no" to the offer proposed. This presupposes that when we use a parametric approach to find the welfare measure of a group (through the WTP), we should assume some form for the distribution function of WTP (Del Saz, Barreiro and Perez, 2000), which involves formulating a hypothesis about something that is not observable, so we are taking a number of risks (Kriström, 1990), as we do when using logit models (lognormal distribution) or probit (normal distribution). Therefore, the estimated mean WTP will depend on the parametric model chosen.

However, the real distribution of the WTP expressed by consumers is a magnitude that we can not observe, so many researchers and analysts opt for the use of "non-parametric" models, because it´s not necessary to concrete the form of the DAP function of distribution. Among other advantages, “non parametric” models are easily understandable that parametric techniques.

In fact, from the suggestions by Kriström (1990) and Duffield and Paterson (1991), alternative methods, in which the distribution function should not follow any preset shape, are sought. According to Del Saz, Barreiro and Perez (2000), these nonparametric approaches are useful when we have a large number of observations and sufficiently representative of the population. On the other hand, Haab and McConnell (1997) also propose nonparametric solutions to the problems of VC to estimate the mean WTP.

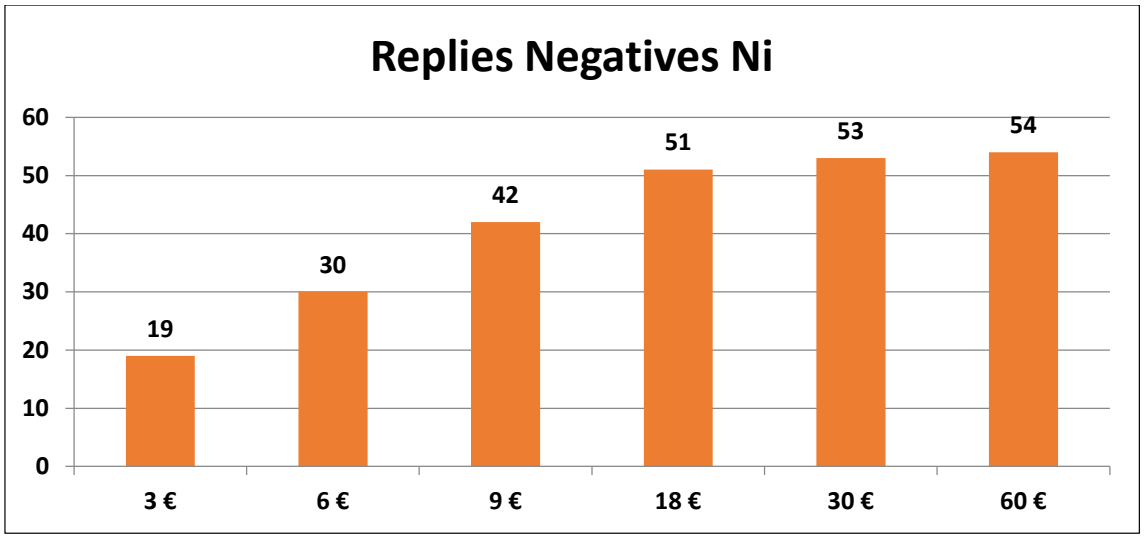
4.1. Turnbull Approach.

The approach of Turnbull makes an analysis of the WTP from negative responses (Ni), to the quantities offered in the consumer survey.

From the results obtained in an exercise of CV regarding the WTP of a sample of the population of Bétera (Valencia) to preserve the Bofilla tower (see Table 1), we call $C_i =$

{3€, 6€, 9€, 18€, 30€, 60€}, to set prices offered during interviews. We consider the element $n + 1 = 90€$, the price at which nobody accesses to the hypothetical market for the good in question. P i represents the probability that the WTP of the respondent is in the half-open interval[3] $[C_{i-1}, C_i[$. N_i represents the total of negative responses. Y_i represents the total of positive responses. Simultaneously $P_i = N_i/(Y_i + N_i)$, the percentage of respondents who answered "no" to the question of the WTP. If we call F_i the cumulative[4] distribution function, then P_i would, be a natural estimator F_i (Soncco and Armas; 2008).

Figure 7.- Number of negative responses (Ni), expressed by those interviewed, before the prices offered on your WTP



Source: Compiled from the results of the survey

So $P_i = F_i - F_{i-1}$, being

$$F_i = \frac{N_i}{N_i + Y_i}$$, additionally $i = 0 \rightarrow F_0 = 0$

[3] We define closed interval $\boldsymbol{Ic} = [\boldsymbol{C_{i-1}}, \boldsymbol{C_i}]$, if $\forall \boldsymbol{x} \in \boldsymbol{R} \rightarrow \boldsymbol{C_{i-1}} \leq \boldsymbol{x} \leq \boldsymbol{C_i}$ additionally define open interval $\boldsymbol{Ia} =]\boldsymbol{C_{i-1}}, \boldsymbol{C_i}[$ if $\forall \boldsymbol{x} \in \boldsymbol{R} \rightarrow \boldsymbol{C_{i-1}} < \boldsymbol{x} < \boldsymbol{C_i}$, thirdly, we define the right half-open interval $\boldsymbol{Isd} = [\boldsymbol{C_{i-1}}, \boldsymbol{C_i}[$ $\forall \boldsymbol{x} \in \boldsymbol{R} \rightarrow \boldsymbol{C_{i-1}} \leq \boldsymbol{x} < \boldsymbol{C_i}$, and finally, similarly we would define the left half-open interval.

[4] And this is also monotonically increasing function.

Table 1.- Estimated mean WTP according Turnbull

Estimation of the mean WTP Turnbull							
Group i	**Rank**	**Rode (€ / year)**	**Replies Negatives Ni**	**Replies Affirmatives Yi**	**Total Observations Total i =Ni + Yi**	**Negative proposition (Function accumulated Ni / Total i)**	**Lower limit estimate WTP E(WTP)**
0	**0 -3€**	**3 €**	**19**	**37**	**56**	**0,33928571**	**0,00 €**
1	**3€ - 6€**	**6 €**	**30**	**23**	**53**	**0,56603774**	**0,68 €**
2	**6€ - 9€**	**9 €**	**42**	**18**	**60**	**0,7**	**0,80 €**
3	**9€ - 18€**	**18 €**	**51**	**7**	**58**	**0,87931034**	**1,61 €**
4	**18€ - 30€**	**30 €**	**53**	**4**	**57**	**0,92982456**	**0,91 €**
5	**30€ - 60€**	**60 €**	**54**	**1**	**55**	**0,98181818**	**1,56 €**
6	**60€ - 90€**	**90 €**				**1**	**1,09 €**
			249	**90**	**339**		
						E(WTP)	**6,66 €**

Source: Compiled from the results of the survey

If we match each value C_i with a half-open interval on the right $[C_{i-1}, C_i[$, then P_i is the probability that the DAP is in the half-open interval on the right, between the moments $[[i-1, i[$.

The mean estimated using the nonparametric approach defined by Turnbull E (WPT), will be given by the expression:

$$E(WTP) = 0 * P_0(0 \leq WTP < C_1) + C_1 * P_1(C_1 \leq WTP < C_2) + \ldots\ldots\ldots\ldots +$$

$$C_n * P_n(C_n \leq WTP < C_{n+1}).$$

Which as shown in Table 1, we would abbreviate as:

$$E(WTP) = \sum_{i=1}^{n+1} C_{i-1} * P_j = 6{,}66€$$

4.2. Kriström approach.

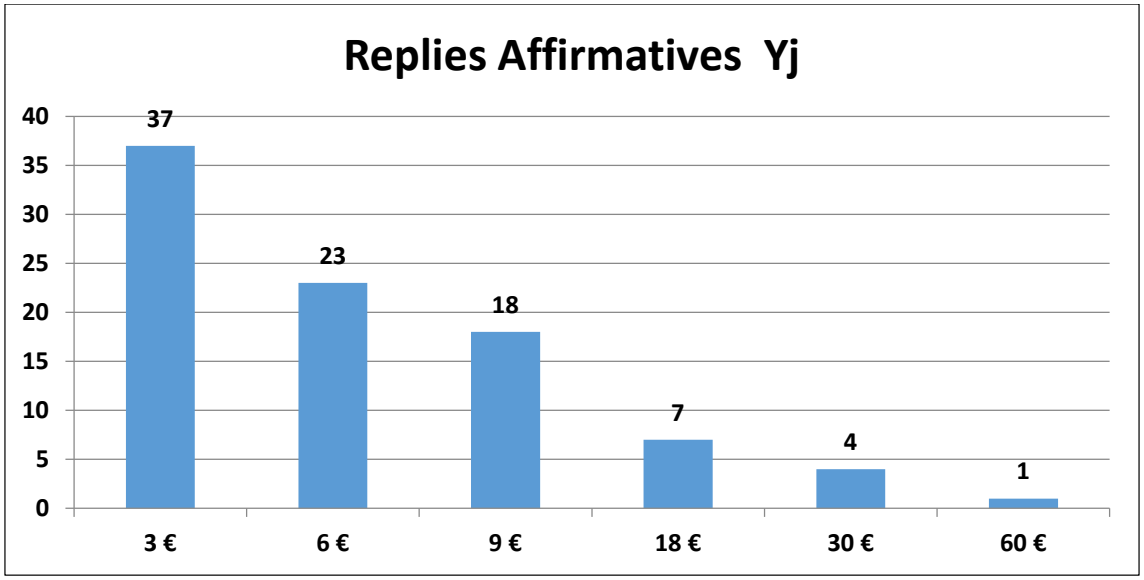
On the other hand, from the Yesterday et al. theorem (1955), the nonparametric approach of Kriström proposes an analysis of the WTP from the positive responses (Yj) to the quantities offered in the consumer survey.

As we can see in Figure 3, by ordering the affirmative answers to the question about the DAP, we have a decreasing series. So, the percentage of affirmative responses for each proposed price will form a series monotonically decreasing.

Unlike indicated in the Turnbull technique, we must make two additional assumptions. First, we assume that when the asking price is 0 € (ie, $C_j = 0$), then the probability is $P_j = 1$, and when the price offered is such that nobody enters the hypothetical market (eg 90 €), then the probability is $P_j = 0$. The second assumption is that the linear interpolation is an approximation of proper behavior between the proposed points (Del Saz, Barreiro and Perez, 2000). Both assumptions define well the demand curve (Figure 4). With this we ensure that the described function cuts the vertical axis at the point (0, 1) and the x axis at the point (90, 0)[5].

In a similar way, as we did in the previous case, we call $C_j = \{3€, 6€, 9€, 18€, 30€, 60€\}$, to set prices offered during the interviews. We also consider the element $n + 1 = 90€$, that would be the price at which one accesses the hypothetical market for the good in question. N_j represents the total of negative responses. Y_j represents the total of positive responses. Simultaneously $P_j = Y_j/(Y_j + N_j)$ is the percentage of respondents who answered "yes" to the question of the DAP. If we call $(1 - F_j)$ the cumulative distribution function should be monotonically decreasing, then P_j would be, as we define it, a natural estimator $(1 - F_j)$ (Soncco and Armas; 2008).

Figure 8. Number of affirmative answers (Y), expressed by the respondents for each of the offered prices on their WTP



Source: Compiled from the results of the survey

[5] Montagut (2015, 217), three-point truncation indicated for alternatives Cj amounts of € 90, € 100 and € 120. In this study we consider only the first, omitting the other two cases, which are similar.

From here, the estimator P_j is written as:

$$P_j = \left(1 - F_{j-1}\right) - \left(1 - F_j\right) = \frac{Y_{j-1}}{N_{j-1} - Y_{j-1}} - \frac{Y_j}{N_j - Y_j}$$

The mean WTP is approximately equal to the integral of the area under the cumulative distribution function, and for each section, we write it as:

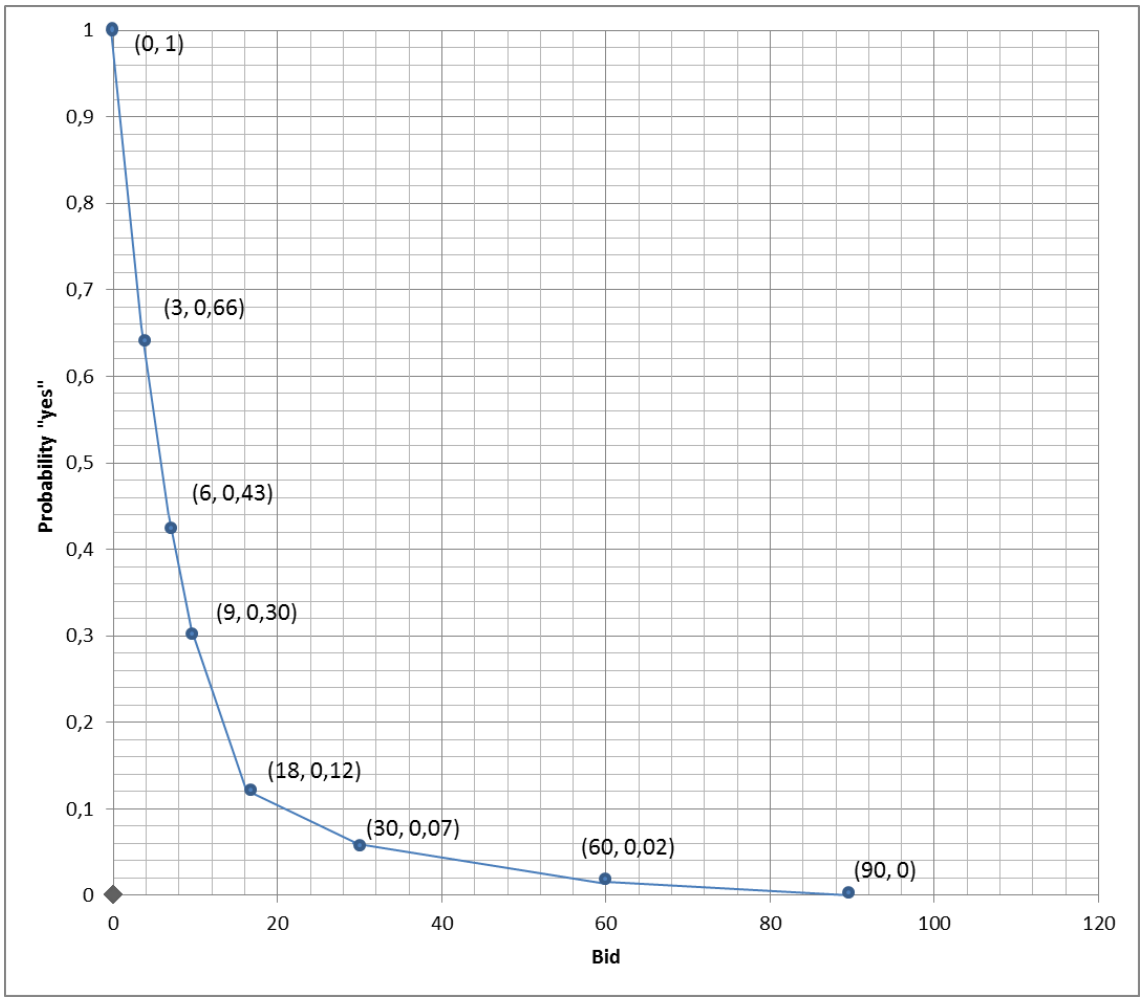
$$E(C)_{[C_2 - C_1]} = \int_{C_1}^{C_2} Cf(C)dC = C[F(C_2) - F(C_1)] \quad \text{being} \quad C_2 \leq C \leq C_1$$

Where C_1 and C_2 are the lower and upper limits of each quantity C, and $f(C)$ and $F(C)$ are respectively the probability distribution function and cumulative distribution function. In Table 2, we can observe the calculation of the mean WTP which is the sum of all partial[6] averages indicated and that obtained with the expression:

$$E(WTP) = C_{j1}[F(C_2) - F(C_1)] + C_{j2}[F(C_3) - F(C_2)] + C_{j3}[F(C_4) - F(C_3)] + \ldots\ldots\ldots + C_{j(n-1)}\left[F(C_n) - F\left(C_{(n-1)}\right)\right] = 9{,}87€$$

[6] In this particular case, they would be seven addends.

Figure 9. Empirical survival function of the WTP, using estimates Yesterday, et al (1955), to the point of truncation of 90 €



After the estimates obtained in both nonparametric approaches, and seeking to provide a greater consistency to these results, we chose a parametric approach (an "spike" model)[7].

According to Del Saz (2000), *"the spike model allows individuals to have a WTP = 0 for the public good. The fact of assigning a non-zero probability to a WTP = 0 can lead to a 'spike' in the WTP distribution function, ie, a discontinuity or a jump in the zero value"*. The average value estimated by this procedure would be reflected in the following calculations, from the Maximum Likelihood Estimation (MLE) function and obtaining the α and β coefficients (Montagut, 2015).

[7] If we are in the results of a contingent valuation exercise, with the presence of a high degree of responses in the WTP = 0, counting among genuine or real zeros and "zeros protest" it is convenience using a model "spike" (Kriström, 1990; Del Saz and Garcia, 1999)

$$\alpha = -0{,}2530089$$

$$\beta = 0{,}059462$$

$$spike = \frac{1}{[1 + e^{\alpha}]} = \frac{1}{[1 + \exp(\alpha)]} = \frac{1}{[1 + \exp(-0{,}2530089)]} = 0{,}56291695$$

And if β is positive (β > 0), the mean WTP is given by the expression:

$$\overline{DAP} = \frac{1}{\beta}\ln[1 + e^{\alpha}] = \frac{1}{\beta}\ln[1 + \exp(\alpha)] = \frac{1}{0{,}059462}\ 0{,}56291695 = \ 9{,}66\ €$$

As can be seen in Table 3, the results of the E (WTP) obtained in the three procedures used (two semi-parametric and parametric), do not differ too much, contributing in some way to reinforce the result of the first two.

Table 2.- Estimated mean WTP, according Kriströn (

Estimation of the mean WTP Kriström							
Group j	**Rank**	**Rode - quantities (€ / year)**	**Replies Negatives Nj**	**Replies Affirmatives Yj**	**Total Observations Total j =Nj + Yj**	**Affirmative proposition (Function accumulated Yj / Total j)**	**Estimate WTP E(WTP)**
0	**0 -3€**	**3 €**	**19**	**37**	**56**	**0,66071429**	**0,51 €**
1	**3€ - 6€**	**6 €**	**30**	**23**	**53**	**0,43396226**	**1,02 €**
2	**6€ - 9€**	**9 €**	**42**	**18**	**60**	**0,3**	**1,00 €**
3	**9€ - 18€**	**18 €**	**51**	**7**	**58**	**0,12068966**	**2,42 €**
4	**18€ - 30€**	**30 €**	**53**	**4**	**57**	**0,07017544**	**1,21 €**
5	**30€ - 60€**	**60 €**	**54**	**1**	**55**	**0,01818182**	**2,34 €**
6	**60€ - 90€**	**90 €**				**0**	**1,36 €**
			249	**90**	**339**		
						E(WTP)	**9,87 €**

Source: Compiled from the results of the survey

5. RESULTS FROM THE COMPARATIVE ANALYSIS

From the WTP obtained at individual level, we use the aggregation of results to assess whether we could recover the public good object of study. Usually this aggregation should be done on individuals in a given community.

Table 3.- Estimation Models employees and E (WTP) calculated

Estimation models used	E(WTP)
Turnbull	**6,66 €**
Kriström	**9,87 €**
Spike	**9,66 €**

Source: Compiled from the results of the survey

According to Jakobsson and Dragun (2001), the key question is whether to add about persons or households. Some social scientists believe that the budget constraint used by individuals is usually the income of the homes, and so it´s recommended by Arrow et al. (1993). We follow this approach and Table 4 presents the result of aggregations of individuals and households analyzed using the Turnbull and Kriström techniques.

Table 4.- Aggregation of results using the "nonparametric" Turnbull and Kriström on persons or households in 2014 approaches

	E(WTP)	Population total	Older than 18 years	Total households	Aggregation of inhabitants	Adding on households
Turnbull	**6,66 €**	**21.846**	**16.963**	**7.905**	**225.947 €**	**105.295 €**
Kriström	**9,87 €**	**21.846**	**16.963**	**7.905**	**334.850 €**	**156.045 €**
Spike	**9,66 €**	**21.846**	**16.963**	**7.905**	**327.725 €**	**152.725 €**

Source: Compiled from the results of the survey

Therefore, if we multiply the WTP average obtained by the two scheduled payments, and the number of people or households in Bétera (according to data from 2014), we would obtain the social benefits generated by the restoration of Bofilla Tower. These values range from a maximum of 225,947 € to a minimum of € 105,295. These results are based on the case that the average considered by Turnbull (6.66 €) will be added over adult people (over 18 years) or households of the population, respectively. Then if we consider the Kriström average (9.87 €), the values range between a maximum of 334,850 € and a minimum of 156,045€. Finally, with the average obtained with Spike methodology (9.66 €) would range between a maximum value of 327,725 € and a minimum of 152,725 €, according to the aggregation would occur on over adults or households, respectively.

Regardless of what is stated by authors as Jakobsson and Dragun (2001) or Arrow et al. (1993), in the interviews conducted in Bétera we have raised that the WTP of individuals would reflected as an increase on a local tax (IBI). This tax is already being paid by locals; so the average WTP would swell the tax during the two years of heritage restoration works. This chosen tax is been paid by each house, so it would be advisable to add the results on households (Montagut, 2015).

6. FINAL CONCLUSIONS

If we compare the results obtained with the addition of the calculated values with the updated cost of the capital asset, we can see that in both cases is not enough. The population of Bétera is unable to recover this heritage asset in time. This may be due to a large number of protest responses [8]. Among the many causes that can cause these type of responses, we can include the lack of interest of the population about the local culture and heritage. Bétera is a town that has grown by labour causes in recent decades. A large number of relocated people have been attracted by the existence of the military base, which implies that, in the beginning, the new population can not feel attracted to the host culture in the same degree as locals. A different case is that over time those who in principle were dissatisfied with the relocation, establish their residence now begin to better understand the local culture, history and heritage.

However, we can say that there is still a high percentage of people who are willing to contribute a small part of their income in protecting their local heritage assets. This could be accomplished with a good project for the protection and maintenance, so that these assets do not remain unprotected or subject to fluctuations in the public policies. A properly legal framework is necessary in this sense, reflected in good legislation on patronage in the historic cultural heritage.

The great similarity of the mean WTP calculated in the three procedures used contribute to provide greater reliability and consistency of the results obtained, which somehow we guarantee that errors or possible biases have been minimized.

Finally, the MVC results can be used to provide valid information to inform decisions on economic policy, so with this exercise we move from strictly academic level showing the enormous usefulness of this technique (Del Saz, et al; 2000).

[8] The protest responses occur when there is any disagreement between the interviewee, with the approach formulated the question to evaluate (Azqueta, 1994).

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