



The Social Value of Cultural Heritage Valorization Programs: a Contingent Valuation Approach¹

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Abstract: In this paper, we aim at assessing the potential changes of local communities' welfare that are due to the implementation of a hypothetical local program designed with the specific aim of valorising the changes in the cultural capital of two southern Portuguese regions. The program includes the creation of a range of new cultural goods and services, to create value after new archaeological knowledge. The increasing in local cultural offer, in quality and quantity, may generate a fuzzy set of non-marketable social-economic benefits which usually are not taken into account by deciders, during the political decision process. We want to analyse the preferences and evaluate the value (the benefits) the local community reveals towards the heritage valorization program. A Contingent Valuation (CV) approach was used, which is a stated-preference based economic evaluation approach, commonly used to evaluate changes in individual preferences due to changes in natural and/or cultural capital; it translates them into a single, monetary amount; the amount is often considered as to be a proxy for the social value of cultural capital's changes. We found that the local community revealed to dedicate a relatively high preference for the heritage valorization program. Such preferences were revealed qualitatively and in currency terms as well. Each individual from the sample is willing to pay, on average, a maximum of 0.66 (1.24) euros on a monthly basis and during 5 years, to co-finance the managerial entity aimed at

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designing, implementing, and assessing the impacts of the program. The estimations are not significantly different from others.

Key Words: contingent valuation; heritage; welfare; non-market social value; regional policies; evaluation.

Clasificación JEL: Z10; R28; R58; I38; D12.

1. Introduction

The paper describes and discusses an integrated methodology for assessing the social value of a program designed with the specific aim of valorizing the knowledge produced by rescue archaeological activities implemented in two southern Portuguese regions: Sobreira de Cima and Brinches. More specifically, the program proposal includes the creation of a range of new cultural goods and services, based on the new archaeological knowledge. If the program is implemented, it will be expected that local society may have a new cultural stock, and flows of new different cultural goods and services. People will use such newly created cultural goods and services for education, recreation, cultural, touristic or other type of reasons. Such uses will generate flows of benefits that will be captured at the individual, and the social level as well. We assume that such benefits will have a positive impact in the local welfare, thus strengthening local cohesion and actively contributing for local sustainable development. By aggregating the flow of cultural benefits generated along a period of time across the locals, we may get a measure for the total welfare change - or of the total value – due to the increasing in the cultural heritage generated by the program. We intend to estimate such measure and further use it as a proxy for assessing the positive changes in local welfare, due to the cultural valorization archaeological program. Such measure is a tool aimed at helping administration and politicians during the project decision-phase, enabling them to take more efficient and sustainable decisions concerning the cultural program, and the regional sustainable development strategy as well. It may be also a useful tool, for the program's management and financing. Financially, CV money measure is useful: in assessing the citizens' willingness to pay for the existence, conservation, preservation, improvements, or destruction of cultural capital goods; in verifying how WTP varies with citizen's socioeconomic characteristics, attitudes and



perception; in defining pricing policies for different cultural destination by choosing among, for instance, uniform-flat pricing, interpersonal price discrimination, voluntary based on WTP prices, intertemporal price discrimination, or block prices; in assessing the net social benefits provided by the cultural capital goods and policies; in providing additional information for a multisource funding strategy involving regional and national taxes and subsidies, donations, financial funds, public/private partnerships, financial incentive systems to motivate private stakeholders involvement in cultural conservation and preservation; in helping public authorities in the definition of cultural subsidies policy, as a justifying tool of the later; as a tool to setting the monetary plafond's; and finally as a tool to helping decision concerning who, when, and how much. The task comprises several research phases and includes different, although complementary, methodologies and theories to assess, in currency, the changes in welfare due to the multi-cultural outcomes that may rise from the new archaeological stock and cultural flows. Firstly, we describe the object of evaluation and the range of social-economic benefits it can provide to local community thus enhancing social welfare constituents. Secondly, we present the methodologies used in assessing the value of such particular object of evaluation, which include: the concept of merit good; the concept of Total Economic Value (TEV); an individual consumer preference based model to define the adequate theoretical money measure for assessing the fuzzy set of social-benefits provided by the valorization program; and a contingent valuation approach. A common CV application comprises several phases (Alberini and Kahn 2006; Freeman 2003; Mitchell and Carson 1989). At the end, we translate the multi-individual and community preferences for the cultural activities and functions that may arise from the valorization program of the Sobreira de Cima's and Brinches's archaeological knowledge, into a single monetary measure of the socio-benefits (welfare) locals are expected to benefit.

2. The Object of Evaluation and the Social-Benefits

Our main aim is to assess the socio - economic value of a valorization program for the knowledge produced by the rescue archaeological activities implemented in two southern Portuguese regions Sobreira de Cima and Brinches. The program was specifically designed by Jorge (2012) to the "Funerary practices in Alentejo's Recent



Prehistory and Socio-Economic Proceeds of Heritage Rescue Projects (*Práticas funerárias da Pré-História Recente no Baixo Alentejo e retorno sócio-económico de programas de salvamento patrimonial*) - PTDC/HIS-ARQ/114077/2009. Rescue archaeology – also called salvage archaeology, mitigation archaeology, preventive archaeology, commercial or emergency archaeology (Bernardes 2007), or contract archaeology (Johansson and Johansson 2001) -, is a generic designation for surveying, excavating, collecting and recording activities carried out in areas revealed or threatened by development projects *e.g.* major construction projects, highway projects, dam projects, mining, quarrying, or land development projects, in order to collect as much data and materials as possible from a site in danger of imminent destruction. The destination given to the archaeological findings depends of their scientific and educational potential. Rescue archaeology might involve several activities like notes taking, photographs and videos, quick sketches, rudimentary measuring, or the notation and removal of small finds. At the end of some rescue archaeological process, archaeological output might be reduced to a set of data, photographs and videos of an archeological place that does not exist any longer. In 2009 and 2006, the State-owned enterprise Alqueva's Infrastructure Development Company (EDIA) and the National Energy Networks Company (REN), began the construction of the irrigation Block of Brinches – integrated in the construction project of the Alqueva Dam - and of the high-voltage substation, respectively. Under the Portuguese legislation for the protection of archaeological heritage⁽²⁾, EDIA and REN companies contracted the ERA-Archaeology Conservation and Heritage Management, S.A. Company, to take charge of the rescue archaeological activities. Both sites are located in the southeast of the country in the District of Beja and they belong, respectively, to the parishes of Brinches (in the municipality of Serpa), and Perdígão (in the municipality of Vidigueira). The first necropolis of hypogeum of the interior Alentejo was discovered. It is composed of a vast set of graves with underground burial chambers with hits on well from the surface; they were excavated in the rock, 4000 years before Christ. Skeletons and various objects in stone and bone were also found. Being completely unknown until recently, the currently discovered underground graves apparently coexisted within the region with other relatively common megalithic funerary monuments, like dolmens or presenters. The knowledge now generated by the archaeological rescue activities, has been



emphatically classified by the archaeologists as “Very Important” for the history of the region’s Archaeology, in that it completely changes the knowledge about the Baixo Alentejo’s prehistorical burial practices. Such knowledge led to the conclusion that Baixo Alentejo’ region had specific mortuary’s architecture and unique funerary rituals. The scientific importance, and the specificity, of such new knowledge have led researchers to recognize its high potential for valorization. The findings were recorded, and the artifacts collected and transported to other locations. At the end of the rescue archaeological process, one got a set of new knowledge over prehistoric burial practices, meanwhile preserved in the form of records and artifacts. UNESCO classifies such set of knowledge as heritage, and therefore it must be targeted for conservation and dissemination (UNESCO 1972; *Recommendation concerning the 1978 protection of movable cultural property*, adopted by UNESCO in Paris, November 28, 1978 (§ 1)); and ICOMOS 2002). Having all these principles in mind, it was drawn up a proposal to conserve the archaeological knowledge of Sobreira de Cima and Brinches by means of its dissemination and valorization, the main aim being to make the archaeological knowledge an overall priority to local and regional development. To do so, the dynamic interrelationship that may be built up after cultural heritage, social values, economic activities, and local and regional development objectives, has to be exposed and made clear to the stakeholders (where promoters and policy makers are included), and the overall population. To fulfil this objective, a valorization program was proposed, aimed at incorporating the Sobreira de Cima and Brinches rescue archaeological knowledge into local development policies by means of activities related with education, science, communication, local ecosystems, cultural tourism, recreation, creative industries, local industries and products. Sobreira de Cima and Brinches rescue archaeological knowledge is supposed to contribute to poverty alleviation, local economic growth and local social cohesion, and other social welfare constituents. The strategy underlying the construction of the team’s proposed valorization program, is to use the archaeological heritage as an input, to produce new cultural activities, goods, and services. These may be proposed, designed, implemented, and managed, interchangeably, by the rescue archaeology’s promoters, the local and regional stakeholders, the overall population, or by all these simultaneously; hence, material and/or immaterial cultural heritage may gain significance for the public, and therefore



value. The valorization program includes six Nuclear Themes: "Rituals of life and death"; "Frontiers of the Ego"; "Nature, Heritage and Landscape"; "Economics and Resources"; "Innovation and Technology"; and "Physical Anthropology"; they are the backbone of the valorization acts, and the necessary condition for the creation of a regional and/or local Brand as well. A networked type structure build on the nuclear themes will frame the set of cultural valorization acts, thus given them coherence and consistency. Examples of the proposed valorization actions include: Thematic Routes; Creation of a Brand activity; Creation of an Event activity; Involvement of Local Producers; Exhibitions; a Heritage Education Program for the population in general and schools in particular; and the creation of a Virtual Museum.

3. Methodology

3.1 The CV Approach

A CV stated-preference technique was applied to assessing the individual's WTP (which is the theoretical money measure chosen) for the aforementioned heritage valorization program and the program's social value. CV is the most popular technique to evaluating the social values of the goods and services (Carson et al 2005) experiencing merit good characteristics², in particular, and the best approach also for enabling the elicitation of non-marketed values for fuzzy social benefits (Provins et al 2008; Borghi et al. 2007) that are hardly recognised by stakeholders. CV provides one single monetary measure for different social and economic values. Since its beginning - Bowen 1943 and Ciriacy-Wantrup (1947) (1952) defined it; and Davis (1963) applied it for the first time - the method has been deeply analysed and largely discussed, theoretically and empirically, to demonstrating the validity, reliability and credibility of the CV money measures, in spite of its hypothetical nature (Bohm 1972; Samuelson 1954; Randall 1974; Cummings et al. 1986; Mitchell and Carson 1989; Arrow et al 1993; Haab and McConnell 2002; Alberini et al 2004; Kanninen 2007). In 1980, the method was unreservedly recognized (among other valuation techniques like the travel cost approach, the hedonic approach, or the conjoint analysis, the later more recently) by the US federal government in the text of the *Clean Water Act* (1972), and that of the

² See merit good concept and characteristics in Mazzanti (2002); Musgrave 1988; Throsby and Withers (1985); Cwi (1980) or Netzer (1978).



Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (1980), as an important tool for supporting judicial decisions, namely for valuing the welfare changes arising from environmental disasters. Previous surveys of valuation studies in the cultural area applying CV have been provided by Pearce and Mourato (1998), Pearce et al (2002), Navrud and Ready (2002), and Noonan (2003). More recently several empirical attempts have been applying CV approaches to estimate the non-market values of the social benefits enhanced by cultural policies in general, and by rescue archaeological knowledge in particular (Báez and Herrero 2012, Vandermeulen et al 2011, Provins 2008, Mourato and Mazzanti 2002, Navrud and Ready 2002). Following Provins et al (2008), studies concerning the economic values associated with cultural heritage like archaeology have been covering ancient monuments (Maddison and Mourato 2002); ancient citadels (Mourato, et al 2004); ruins and archaeology (Boxwall et al 2003, Poor and Smith 2004, Riganti and Willis 2002); maritime archaeology (Whitehead and Finney 2003); historic parks (Willis, 2002); or heritage sites (Alberini et al 2004; Rolfe and Windle 2003). In the study performed by Santagatta and Signorello 2002, the benefits of a public program to maintaining public assessment to a number of historic buildings and sites, were assessed. Recent cultural valuation studies include, for instance, Othman et al (2013), Báez- Montenegro et al (2012), Báez and Herrero 2012, Lundhede et al (2012), Kinghorn and Willis (2008), Tuan and Navrud (2008; 2007), Dutta et al (2007), Kim et al (2007), or Ruijgrok (2006). CV simply asks for the individual's WTP/WTA for the alterations in welfare associated with any hypothetical change in the cultural services benefits' quantity or quality by means of questionnaires, where a contingent hypothetical market for that change is recreated. The CV questionnaire is the foundation to support a hypothetical market, with which the individuals will be faced with and further asked to state their WTP/WTA to the proposed change in local cultural services offer.

3.1 Survey Design

We spent considerable efforts to design the hypothetical market for the valorization program in a way that allows respondents to engage in hypothetical, comprehensible, and credible, monetary transactions involving changes with the offering of cultural services (see Mendes 2013; Whitehead, 2009; Boyle and Bergstrom 2001; Arrow et al.,



1993; Mitchell and Carson, 1989 for details). As such, focus group sessions, pre-testing, and advises over how to build a CV's questionnaire to get welfare money measures theoretically correct were followed throughout the questionnaire's building and implementation phases. Similar applications to ours may be seen in Báez-Montenegro et al 2012; Báez and Herrero, 2012; Tuan and Navrud 2008, 2007; Dutta et al 2007; or Ruijgrok 2006, for instance. The questionnaire was designed in such a way as to avoid the common CV's biases the literature deeply discusses like free-riding behavior, protest responses, warm glow, vehicle of payment, etc. (Mendes 2013, Arrow et al., 1993; Mitchell and Carson, 1989); whenever possible, we followed the literature recommendations to get strong, reliable, WTP measures. Besides avoiding the CV's biases which are common to any CV application, we also took into consideration other sources of biases specifically related with the singular characteristics of our object of evaluation: the multi value characteristics of the object of valuation driven by its merit good nature; and the current deepening Portuguese socio-economic crisis. That is, respondents had to state their preferences for a very complex product, by means of an unfamiliar, contingent market, within a short period of time, and during severe structural national crises. Two other additional constraints were still considered: a budgetary, and the lack of experience of the population to respond to these types of questionnaires. These are the reasons why the questionnaire: had to be short, in order not to make the respondent give up early or be bored enough with the questions to give up; optimal information concerning the characteristics of the evaluation object (the commodity) and the services provided by it had to be provisioned in such a way as to avoiding "cognitive overload" (Boyle and Bergstorm 2001); questions could not be too complex, particularly those related with respondents' attitudes and perceptions regarding the contingent commodity; we had to avoid, as much as possible, the zero euros responses and the protest zeros; under severe time and financial constraints we had to make the contingent scenario to sound credible, reliable, and neutral, but also as clearest and pedagogical as well, thus avoiding the hypothetical bias (Mitchell and Carson 1989). Ultimately, the final questionnaire has four sections. The first section includes a presentation letter for gaining respondent's confidence through formal credibility concerning the valorization program. We felt the letter was a good idea for convincing people of the importance of their answers and the respectability of the



research going on. The second section includes an introductory section, containing attitudinal and perception questions, the so called “warm up” questions, as it is usual in CV applications. These ask for individual’s knowledge concerning the valuation object, *i.e.*, if they ever heard about rescue archaeology; if they ever heard about rescue archaeology in Sobreira de Cima and Brinches; if they ever heard about the archaeological knowledge’s valorization program. Respondents were also asked about their opinions and behavior concerning archaeology in general, and the rescue archaeology in Sobreira de Cima and Brinches in particular, to detect traces of part-whole bias (Mitchell and Carson 1989). Such questions fulfil three main important aims in CV applications: firstly, they prepare the respondent for the valuation question, making him/her to gradually focusing on the valuation topic; secondly, the variables concerning the knowledge of respondent’s attitude and perception regarding the contingent scenario are to testing for answer’s credibility, and to explaining the WTP results; and thirdly, they may be useful in helping diverting free-riding behaviorism (Krupnick and Adamowicz, 2007). The third section (the core of the CV questionnaire) contains the valuation questions and debriefing questions. It begins with a small initial text that was read aloud by the interviewer. In the text, the respondent was explained that, at this stage of the questionnaire, he/she is supposed to be able to quantify, in monetary terms, the degree of importance he/she had previously attributed, in qualitative terms, to the hypothetical valorization program of Sobreira de Cima’s and Brinches’ rescue archaeological knowledge. To do this, a situation characterized by the launch of a hypothetical referendum under the responsibility of the municipality was described, in the sense of this municipal institution be able to assess whether residents are willing to contribute monetarily to the valorization program. To avoid emotional answers and some hypothetical bias from the contingent scenario, we constantly appealed for the respondent to take into account his/her monthly net income. Another explicit appeal was made to the interviewee to compelling him/her to respond as if he/she were facing a real, rather hypothetical, referendum. Such appeals are current practice in most CV’s applications: they aim at increasing the theoretical credibility of the response to a currency related question (Mitchell and Carson, 1982). Following the reading of the small introductory text to the referendum at the beginning of the third section of the questionnaire, the interviewer would start reading aloud the Text 4 after



having delivered to the respondent a sheet containing the same text. Again, the respondent could follow the read aloud by the interviewer, reading the text himself. The Text 4 introduces the hypothetical referendum question of the type “Do you or do you not will to pay for something”. We followed Báez and Herrero (2012)³ to defining the hypothetical referendum valuation question to assess the social benefits of the Sobreira de Cima’s and Brinches’s cultural program. The respondent was primarily alerted for the amount of social benefits (educational, cultural, recreational, and economical) that can rise from the cultural program. The respondent was further told that the achievement of such benefits, may primarily depend on the involvement and commitment of the citizens with the valorization program, and secondly on the establishment of an independent cultural institution. The hypothetical institution is aimed to design, implement, and manage, the valorization cultural program, where the entire stakeholders including groups of citizens, should be actively represented in the cultural institution’s administration and management bodies. Subsequently, the interviewer questioned the respondent if he/she agrees with the institution establishment for the sake of the program’s designing and management if it involves an increase of his/her monthly expenses to co-funding the institution, having in mind that the alternative would be the maintenance of the status quo local scenario. If the respondent said YES, he/she was further questioned what maximum expenditure he/she would be willing to support, on a monthly basis and during 5 years, to co-finance the management institution and then questioned about the reasons justifying his/her response, to detect free riding behavior. To have an insight of how much of the stated positive WTP bid is due to direct and indirect use benefits; option use benefits; and non-use benefits⁴, we asked the respondent to distribute his/her stated positive WTP bid for four reasons, each representing the sets of benefits the respondent could generate if he/she will use the program’s cultural goods and services in different ways (McClelland et al (1992). After the two WTP questions, it follows debriefing follow-up questions. These are aimed at examining the respondent’s motivations for providing zero WTP bid values – and thereby identifying protest behavior – as well as respondent’s motivations for stating

³ They used a management entity as the hypothetical contingent valuation object, to assess the monetary value of a rehabilitation cultural policy urban program for the city of Valdivia in Chile.

⁴ Non-consumptive direct use value (e.g. cultural recreation; cultural visits); indirect use value; option value; and non-use value (existence; paternalistic; legacy) are the four main components of the neo-classical concept Total Economic Value (TEV). See Provins et al 2008; Navrud and Ready 2002.



positive WTP bid amounts, thereby testing the credibility of the bids for detecting outliers. Because our referendum valuation question is open-end, willing to assess the value of a somehow non-consensual and probably controversial program, the frequency of protest zeros, free-riding behavior, or “I refuse to answer” type’s answers, may be high (Cho et al 2008); though a careful survey design although imperative, might not be sufficient to avoid the occurrence of protest zeros. Finally, the last section of the questionnaire is meant to obtain respondents’ census data like age, marital status, education degree, etc. Ultimately, photograph material and maps were used as visual support to help the description of both the status quo and the rehabilitation scenarios. The interviewer read the questions to the interviewed, showing him the questionnaire’s support materials interspersed and sequentially, according to the sequence of the questions in the questionnaire. The materials comprised four descriptive texts, maps, and photographs. Such method of presenting the CV questionnaire revealed to be extremely useful in describing the status quo and the final scenarios thus largely facilitating the respondent’s cognition towards the object of evaluation.

4.2 Data Collection and Survey Results

We took the conservative option of considering as members of target population people of both sexes, aged over 18 years and less than 80 years, residents in the three municipalities - Serpa, Vidigueira and Moura - where excavation spots belong. This option seemed to be consistent with the main aim of the current CV approach; i.e. the assessment of the local’s preferences for the cultural valorization program, as a means to contributing to the conservation and dissemination of the archaeological knowledge, and its reusing for the sustainable development of the local economy. A representative sample of the target population stratified by age group, sex and geographic area of residence was made, based on 2011 Census (INE). The sample was taken from a Universe of 28,989 individuals, distributed by the three municipalities as follows: Serpa (n = 13,205: 6,378, Male/Female, 6,827); Moura (n = 11,278: 5,586, Male/Female, 5,692); and Vidigueira (n = 4,506: 2,231, Male/Female, 2,275). For each municipality, a proportional distribution of the residents was made to comply with their natural distribution. Therefore, 159 questionnaires were collected in Moura, 160 in Serpa and 61 in Vidigueira. At the end, a total sample with 381 representative individuals was



build, with a maximum 5% accuracy and a confidence interval of 95%. We gather a team to apply the questionnaire in the field. A research assistant coordinated the field activities including: selection and training of interviewers; application of questionnaires (pre-test and final version); quality check of the questionnaires collected; field monitoring of the evolution of the questionnaire through weekly meetings. The final version of the questionnaire (May 2013) was finally applied on the ground during the months of June and July, 2013. We used face-to-face interviews as recommended by the NOAA panel (Arrow et al 1993). This method allow us to better guide the interview and to use visual materials like maps, photographs, or digital simulations of the contingent scenario thus arising respondent's interest and awareness. Potential respondents in each of the three municipalities were randomly selected by the method of Random Route. The interviewer approached each potential respondent following a predetermined script and he/she was responsible for filling out the questionnaire. After having compared the structure of our sample with the structure of the universe through the variables Gender, Age, and Academic Achievement, we found no significant differences between them, which made us to conclude that our sample is a good representation of the regional targeted regional population.

4.2.1 Respondent's Perceptions and Attitudes

The majority of the sample's individuals (56.2%) have positive, although moderate, opinion in what concerns archaeology as a whole; they found it "Important" with 67% of the respondents declaring having contact with archaeology through television, movies or videos. Contacts involving an active, physical posture like leaving home to go out visiting places containing archaeological information (including like visits to museums and exhibitions, and visits to sites with archaeological remains), represent 34.3% and 26.1% of the answers respectively. For those who declared to have contact with archaeology, we found regularity (more than 1 contact per year) only in contacts through television with 42.6% mentioning contact between one to three times a year, and 24.5% referring more than three times a year. Only 5.8% declared to know the region's archaeological heritage very well and 60.8% declared to know something although not in depth. 57.1% of the respondents reported the Ruinas de S. Cucufate (35 references), Poço Árabe (30 references) and Castelo de Moura (31 references) as



examples of the use of regional archaeological patrimony for tourism purposes. We conclude that respondents are aware of the use that can be made of the local heritage (particularly of the historical built patrimony) namely for tourism purposes; they also seem to be aware about the existence of substitute local cultural goods. The majority (70%) declared never heard about rescue archaeology or rescue archaeological activities in the region; even after being informed of what rescue archaeology is about and of the rescue archeology activities in Brinches and Pedrogão – Vidigueira in particular, only 11.5% declared having heard of the activity. Almost the entire sample's individuals (92%) strongly agree with the idea of using the rescue archaeological knowledge as inputs to increase local cultural offering for educational, cultural, and socio-economic motives, and 61% stated that the team's valorization program is important, mainly for indirect use closely related with using the cultural services to generating multi - private and multi - public socio-economic benefits ($M = 3.52^5$, $SD = 0.71$; $M = 3.5$, $SD = 0.74$), and intrinsic ($M = 3.51$, $SD = 0.67$) and altruistic ($M = 3.46$, $SD = 0.66$) non-use reasons. Program's rejections were negligible. It seems there is some lack of perception of how and what tourism activities based on the valorization of the archaeological heritage in general and in rescue archaeological knowledge in particular, should be implemented. Whilst the perception of the sort of tourism activities' benefits and damages exists (there is a clear agreement with the idea that archaeological tourism generates more benefits than damages) - the sample's individuals giving equal importance to the economic benefits [$M = 3.55^2$, $SD = .72$] and the social benefits [$M = 3.52^2$, $SD = .71$] - the majority, however, relates benefits mainly with restaurants and hotels only. We consequently conclude that archaeological tourism activities in the region seem to be still very incipient and little diversified due to a great lack of knowledge of how archaeological knowledge can be used as cultural input for producing social and economic benefits to the sake of the local community. We also found that respondents seem to consider historical cultural heritage and archaeological heritage as having little importance to triggering local tourism development. Inversely things like a quiet life (ranked 1st), traditional products (2nd), gastronomy (3rd), and hospitality (4th) were considered to be much more important for tourism. We further wanted to know the respondent's opinions towards the valorization actions proposed by

⁵ We used a Lieckart scale from 1 (I Totally Disagree) to 5 "I Totally Agree).



the project's team, within the context of the proposed valorization program. Subsequently they were asked to classify the actions accordingly to a one- to- five-scale, where 1 = Non Interesting and 5 = Extremely Interesting, thus allowing the ranking of actions in the following descending order of importance: gastronomic week; exhibitions; themed event; concerts and performing arts; creating a brand; guided thematic routes; experimental archaeology services; exhibitions and virtual museum; and finally thematic routes. Cultural actions like Thematic Routes and the Virtual Museum are much less important than gastronomy or exhibition of local products.

4.2.2 Assessing the individual's monetary benefits associated to the valorization program

There are two basic methods to elicit WTP: the open-ended (with or without cards) - or the continuous format - and the close-ended format of the referendum type – includes single or multiple bounded dichotomous choice format, or the discrete format (Mendes 2013). We opted for a monetary question of the referendum (discrete) type - “Do you want to co-finance the program: YES or NO?” -, followed by an open-end monetary question – “How much, on average, are you willing to contribute to ..., on a monthly basis and for five years?” - to those respondents that say YES to the referendum answer. In face of the restrictions pointed out earlier in this paper, we found this to be the more adequate way to elicit the WTP (see Mendes 2013 for the discussion). 78.9% of the sample declared not to be available (NO answer); 18.2 % responded affirmatively (YES answer). Those respondents reporting a positive (YES) willingness to participate in co-financing the cultural program declared to be able to offering a maximum of €4.24 (SD = €3.43), the more frequently stated bid values being 1 euros (31.3%), 2 euros (28.8%), and 5 euro (15.0%). The respondents saying YES to the WTP for the institution and the valorization program were further asked about the reasons underlying their positive compliance⁶: “Because it is important for future generations having knowledge about our ancestors” (altruistic bequest non-use value), was the more important with n=50 nominations, followed by: “Because this type of valorization favors the economic dynamics of the region” (indirect use value) with n = 43 nominations, and by: “Because it is important to conserve and disclose History, the

⁶ 8 reasons were proposed, the last being of the open type; they had to choose three out of eight that closely might explain their YES WTP answer, attributing one out of three points to the more important



local area and its heritage, even if it does not already exist materially” (intrinsic non-use value). The reason “Because this type of valorization makes archeology more interesting for people” was the least referred by the respondents. The reason: “Because it is important to conserve and disclose History, the local area and its heritage, even if it does not already exist materially” get a maximum of 26 “Extremely Important” classification, against 15 “important for future generations” and 13 “favors the economic dynamics” of the other two more favorites. To analyze which of the zero WTP stated bids corresponds to real zeros in the sense that they reflect real individual’s preferences for the CV valuation object, or to protest zeros instead, interviewees were further questioned about the reasons understating their null answers. Results are given in Table 1. Around 44% of the zero WTP sated bids were of protest for the government inability in fully implementing the program and only 38% were true zero WTP bids, thus reflecting the true individual preferences for it; 38.3% do not want to do co-finance due to financial inability which is a valid reason.

Table 1. Reasons to not co-participation in the valorization program

		N	%
<i>True</i>	Archaeology does not interest me, so I do not feel obliged to contribute monetarily.	3	1.0
<i>True</i>	I cannot allow myself any additional monthly expense.	116	38.3
<i>Protest</i>	I believe that such a program should be funded by the State	134	44.2
<i>Protest</i>	Because I already pay too much taxes and fees	34	11.2
<i>Protest</i>	It's one of those projects that will not be for nothing	9	3.0
<i>True</i>	I do not know what to answer	8	2.6

Only 2.6% of the respondents stated not knowing what to answer to the WTP question. To assess the level of interviewees’ civic involvement, we found that 37.4,2% already contribute to cultural or sporting associations, and 35.7% support elders/fire fighters associations. It was also noted that only 16.1% have already contributed to professional associations, 5.8% to environmental protection associations, and 4.9% mentioned have already contributed to economic associations to encourage entrepreneurship. People were also consulted about the current level of satisfaction with their own lives, as well as the perception they have about how it will be in 5 years. The answers show a trend above the midpoint of the scale of satisfaction for both questions (2.5 – Satisfied -, out of a 1 - Not at All Satisfied - to 5 – Extremely - point scale). Future satisfaction seems to be slightly relatively higher than the current level of self-satisfaction. As for the individual’s perceptions regarding their own income more than half of the sample has a



pessimistic perception of the evolution of their income, which may partially explain the high number of zeros, both true and protests, obtained as answers to the WTP binary question: 44.1% of the respondents have the perception that their incomes will decrease; 35.8% declared expecting to stay the same; and only 20.1% believe they will increase over the next year.

4.2.3 Assessing the Sample's Mean individual WTP

Technically, the estimation of the mean WTP in the open-ended CV approach case is a very simple task (Haab and McConnell 2002), as respondents directly state their maximum willingness to pay, instead of stating whether agreeing or not in paying some amount belonging to an interval of proposed bids as it is the case in the dichotomous choice format. Therefore, one just has to estimate the mean of the stated sample's individual WTP. However, we have to deal with the high level of protest zero WTP bids, which is one of the problems of the open-format. Several techniques have been used in CV approaches to dealing with the problem (Pelekasi et al., 2013; Cho et al., 2008; Bowker et al., 2003; Strazzera et al., 2003; Halstead et al., 1992), including dropping protest zeros from the sample. Nowadays, Pelekasi et al.'s (2012) and Halstead et al.'s (1992) recommendations are followed, and protest zeros are considered in the assessment of the sample's mean WTP as if they were real individual's reservation prices. With the inclusion of the protest zeros to carry on with the estimation of the sample's mean WTP, we are assuming that protesters, despite truly feeling availability to co-finance the program, end up using the questionnaire as a vehicle for protesting against government policy. By acting in such a way, respondents reveal to have a strategic behavior towards the program or towards the way the WTP question was placed, since a protest zero generally occurs when respondents reject some aspect of the hypothetical scenario but not the hypothetical object of evaluation; previous studies demonstrate that the act of protesting may somehow hide an individual with an extreme interest on the subject *i.e.*, the archaeological program in our case. Bearing in mind the arguments in favor of the inclusion of protest zeros and the high number of zeros in the sample, it was decided to include protest zeros: ultimately, the sample's WTP mean was estimated with and without the protest zeros to figure out how much each may differ from the other. The sample's mean WTP with the protest zeros and therefore with the



entire $N = 378$ total valid questionnaires (there were two missing data and one outlier), was estimated by equation (1) :

$$\frac{(0.9 \times 299) + (0.509 \times 1) + (1.009 \times 15) + (2.9 \times 23) + (2.509 \times 2) + (3.9 \times 7) + (4.9 \times 3) + (8.9 \times 12) + (10.9 \times 4) + (20.9 \times 2)}{378} = 0.66 \quad (1)$$

The sample's mean WTP without the protest zeros was estimated with equation (1) but using 201 true zeros only in the denominator, and is equal to 1.24 euros. These results indicate that each individual from the sample is willing to pay, on average, a maximum between 0.66 euros - 1.24 euros (with or without the zero protest zeros, respectively) on a monthly basis and during 5 years.

4.3 Assessing the Social Value of the Valorization Program

To assess the total economic value (TEV) or the total social-economic value as defined by Turner et al., 2003; Pearce et al., 2001; or Throsby, 2001, we based on the formula in equation (2) (Mendes 2006) of the Sobreira de Cima and Brinches Rescue Archaeological knowledge's Valorization Program:

$$TEV = \sum_{t=1}^T TEV^t \frac{(1+d)^t}{(1+\rho)^t} \quad (2)$$

Where ρ is a subjective rate of time preference assumed to be positive (the discount factor); d is the yearly inflation rate; TEV^t is the aggregated TEV estimated for the relevant population (N) affected by the changes in utility or well-being at the moment t associated with the cultural improvements implemented by the valorization program and is obtained so that $TEV^t = N \times \overline{WTP}^t$, being \overline{WTP}^t the individual's WTP mean at the t moment.

4.3.1 Assessing the sample's individual mean value for the cultural program (TEV_i)

We begin by estimating the sample's individual mean value for the program following (2). Above, we found that the representative sample's individual is willing to pay on average, a maximum of €0.66 or €1.24 per month, during five years. This means that the sample's mean individual is willing to pay, yearly, and during five years, a maximum of $\text{€}0.66 \times 12 = \text{€}7.92$ or $\text{€}1.24 \times 12 = \text{€}14.88$. Following the natural capital concept analogy which is behind the TEV definition as given by equation (2), we



assume that the Sobreira de Cima and Brinches Rescue Archaeological knowledge's Valorization Program will generate, yearly and during five years, a flow of use and non-use benefits. Such benefits may potentially improve the welfare of the sample's mean individual thus making the sample's mean individual monetary value for the program to be assessed through the estimates of the mean individual WTP. Being more specific, if it is assumed that the Rescue Archaeological knowledge's Valorization Program may generate sample's mean individual welfare increasing, each year, and during five years, equivalent to €7.92 or €14.88, for the provision to the local community of new cultural goods and services. Summing up the aforementioned string of yearly discounted monetary welfare along five years, and taking at the same time into consideration the annual inflation denoted d , one gets an individual, monetary measure of the welfare improvement that the Rescue Archaeological knowledge's Valorization Program may potentially generate, designated by TEV_i . where i goes for the sample's mean individual - and estimated by the equation (3):

$$TEV_i = \sum_{t=1}^5 7.92(14.88) \frac{(1+0.008)^t}{(1+0.04)^t} \quad (3)$$

In (3) we took the inflation rate of 0.8% further assuming that this tax is not going to change significantly along the 5 year period, which appears to be a reasonable assumption. To discount the yearly program's monetary benefit flows, we took the Weitzman (2001) hyperbolic discounting framework, accordingly to which the Immediate Future (1-5 years) is discounted at 4% marginal rate i.e. $\rho = 4\%$ (as in Mendes and Proença, 2005). We therefore obtained a TEV_i approximately equal to €67.81 (with the true WTP zeros only) and €36.09 (with the entire WTP zeros).

4.3.2 Using the TEV_i sample's mean individual value for the cultural program to assessing the total economic value of the program for the locals

We used the above TEV_i estimations to assessing the welfare improvements the knowledge's Valorization Program may potentially generate for the locals by simply multiplying the total economic value of the program for the sample's mean individual (TEV_i) - €67.81 and €36.09, respectively - by the total residents of the municipalities that more directly will benefit from it: Moura, Serpa and Vidigueira. The total number of residents of the sample's universe is 36,722 distributed by Moura (15,167), Serpa



(15,623), and Vidigueira (5,932). Therefore, the welfare improvements the knowledge's Valorization Program may potentially generate to the locals worth, respectively, $€67.81 \times 36,722 = €2,490,118.82$ and $€36.09 \times 36,722 = €1,325,339.63$. If one compares these with -and -without -protest -zeros TEV estimations, we can conclude that the social value of the Valorization Program may be sensitive to the way how zeros are treated within the CV application. Ultimately, we opted for the more conservative way of TEV estimation, i.e., the one with the protest zeros - $€1,325,339.63$. In order to assess how much of the total economic value of the cultural program ($€1,325,339.63$) is due to direct and indirect use values or non-use values, we used the own individual's statements to know which proportion of their stated total WTP positive bid was due to each fraction values, as they are shown in Figure 1. We found that the social values that Moura's, Serpa's and Vidigueira's inhabitants attach to rescue archaeology, are majority related to: firstly, the direct and indirect use of the cultural capital thus generating recreation, cultural, education benefits for the local community and also economic benefits; and secondly to the non-use values mainly due to altruistic motives, *i.e.* locals found it is worth to pay to secure the archaeological knowledge for the sake of locals' and future generations' welfare.

5. Discussion

We describe and discuss an integrated methodology to assess the social welfare change due to a cultural program, specifically created to valorize the cultural knowledge produced by rescue archaeological activities implemented in two southern Portuguese regions, Sobreira de Cima and Brinches. Our main aim is to analyze and qualitatively assess the preferences that individuals have for the cultural program proposal to further express them in currency. The program proposal includes the creation of a range of cultural goods and services based on the archaeological knowledge. People may use such newly created cultural goods and services for education, recreation, cultural, touristic or other type of reasons, which means locals, will be faced with a qualitative and quantitative increasing in cultural offer. By aggregating the flow of individual benefits generated by the using and consumption of the new cultural goods and services associated with that increasing in cultural offer across the individuals along a period of time, we get a measure of the total welfare change - or of the total value - due to the



cultural program. By expressing individual's preferences for the cultural program in currency, we get a single monetary measure for the changes in local welfare due to a program that may provide multi-cultural outcomes. Such measure is a tool aimed at helping administration and politicians during the project decision-phase by enable them to take more efficient and sustainable decisions concerning the cultural program and regional sustainable development. To achieve our goal, we applied the Contingent Valuation (CV) method. The questionnaire was built in such a way as to comply with the entire recommendations made within the vast CV literature but always carrying for accommodating the specifics of our evaluation object so that guarantying that the stated WTP bids could be as much as possible the closest of the real individual's preferences for the evaluation contingent. Following Dalmau-Matarrodona and Puis-Junoy's⁷ (2001) and Mourato and Mazzanti⁸ (2002), we only found a single outlier. The individual at stake reported a WTP bid amount of 25 € which was the highest of all the stated WTP values. However, very large bids may not represent necessarily an outlier response (Hanley and Spash 1993); they may represent a genuine positive response if the respondent's income, education degree and familiarity with the contingent object of evaluation. Therefore, we used some socio-economic variables like age; feeling towards the project; previous knowledge of the project; professional situation; and monthly income, and crossed them with the individual's stated WTP for the program to come to the conclusion that the stated bid was non- legit, since this specific person declared to be unemployed, disposing of a low income level; therefore he/she was considered to be as an outlier and therefore was excluded from the sample. No free riding behavior was clearly detected. When respondents were asked what reasons supported their stated WTP bid amounts (i.e. in the sense of voting), altruistic bequest and socio-economic indirect-use were pointed out as the preferred, closely followed by heritage intrinsic reasons. We went on comparing such reasons with the stated level of agreement in supporting the valorization program per type of reasons, before individuals being asked how much money were they willing to spend with the program. We conclude for the existence of a significant level of coherence in sample's answers. The results allow us to conclude, at least partially, that "donation to co-finance the management institution"

⁷ See Dalmau-Matarrodona's and Puis-Junoy's (2001) definitions of outliers.

⁸ Mourato and Mazzanti (2002) stated that the WTP for cultural goods and services cannot be higher than 0.5% of the individual's GDP.



was the correct means of payment to be adopted in the current CV approach or at least it seems to be unbiased in what concerns the usual social practice of the respondents regarding their contribution to co-financing other social entities. *I.e.*, asking people to state how much would they be willing to contribute with a monthly based donation to co-financing the institution aimed at managing the valorization program, only 2.6% of the respondents stated not knowing what to answer. The percentage of zero WTP might be seen a high number; however this result is in line with other's (Mourato and Mazzanti 2002, p. 61), particularly in the case of those CV applications adopting the open-ended CV format to assess the WTP question, where zero bids can go up to 90%. Examples of this evidence are for instance: Getzner 2012 (p. 273) - he reported "... and the open WTP bid category also attracted only very few respondents", although without specifying how much; Báez and Herrero 2012 declared only 31,7% of the respondents voluntarily agreed to participate in the Valdivia's cultural heritage project; in Ahleim et al 2004, 49% of the respondents reply zero to the WTP open-question; in Maddison and Mourato's 2002 CV application to Stonehenge, 65% of the visitors declared a zero WTP; in Coulton's 1999 CV application to Prehistoric cave paintings, Peak District, UK, 85% individuals declared zero WTP. As for the reasons that may explain such high number of zero answers and besides the obvious technical ones (Mitchell and Carson 1989), we may point out a set of others mainly associated with the regional specificities of the current application. One relates with the lack of locals's cultural knowledge and interest towards archaeology. Although 56% of the respondents declared to "Find Archaeology Important" and 27% "Very Important", 53% have "Never Contacted With It through visits to museums or exhibitions"; 67% of the respondents declared to contact with Archaeology only by "Television, Films, or Videos" ; and the great majority (around 94%) declared themselves "to be indifferent to it" (1%), "to know nothing about it" (14%), to know that "something exists although not knowing what very well" (18%); and "to Know Something of the Archaeological Heritage in the Region, but nothing in-depth" (61%). Other reasons may be due to the current social-financial-economic Portuguese crisis, responsible for the sharp decreasing in wages, employments, pensions and reforms, household income, and very sharp decreasing in cultural investment too, namely in archaeology goods and services: almost 80% of the sampled individuals declare to expect their income to be worst (44%) or to stagnate



(36%) in the near future. Ultimately we can therefore conclude that although respondents find Archaeology important (warm glow effect?), very few seem however to reveal a proactive attitude to contact with it, perhaps because they experience some lack of cultural archaeological knowledge, or an increasing household's income shortage, or even they perceived an increasing lack of interest from government in promoting and disclose this sort of cultural capital. Hence, keeping these reasons in mind, the welfare of a high number of inhabitants seems not to be particularly affected by changes in archaeological goods and services and individuals therefore seem not very interested in spending money with the issue. In some instances, it is a minority of the population who states positive values, typically those using the cultural goods with regularity, the richer and the more educated segments (Mourato and Mazzanti 2002). We went on investigating if this was the case of Brinches' and Sobreira de Cima's cultural valorization program. A Chi-square test of independence was used to seek for correlation between the referendum question and the stated WTP⁹ and gender; marital status; academic qualifications; job situation; and net monthly income of the household. We could not find any statistically significant relationships between respondents' positive WTP and the other socio-demographic variables mainly education or income, similar to those detected in the literature. The same lack of relationships persists in what concerns the refusals - zero bids -, per type of refusal (*i. e.* protest or non-protest zero bids), and the aforementioned social-economic variables the results indicating a statistically significant association relationship only between Academic Degree and refusal to WTP. Again, we could not find any statistically significant relationships between respondents' refusal to WTP and the other socio-demographic variables. Such failure is not in line with the conclusions reached by other cultural valuation studies and applications where positive statistically significant relationships generally exist, with the richer and educated respondents declaring more often their willingness to monetarily contribute to some sort of cultural financing (Mourato and Mazzanti 2002, p. 61). One possible explanation for this failure may rely upon the quality of the data and the small sample dimension. The sample's representative individual is willing to contribute on a monthly basis and during five years with €0.66 (€1.24) to secure the creation of a managerial institution that will design, implement, appraise, and manage the entire

⁹ The study of these relationships is still on going, by using valuation or WTP functions.



cultural program and the and the cultural actions it contains. This means that the total value (or total welfare in currency) that local community stated for the cultural program is equivalent to €1 325 339,63 (€2 490 032,04). The estimates are 0.05% of the 2010 GIP of the region Baixo Alentejo (PORDATA) that comprehends the three more directly affected municipalities by the program: Serpa, Moura and Vidigueira. Clearly, the individuals that are willing to pay to secure the implementation of the program, do it mainly to non-use altruistic and intrinsic reasons and less to use reasons. It should be stressed however, that locals seem to be unwilling or willing to pay much less money to sustain the program if implemented only for the sake of the experts (archaeologists) and not for the sake of the overall community. The majority of the stated willingness to pay, seems strictly related with the idea of giving some use, now or in the future, to the cultural capital obtained from the rescue archaeological activities in Brinches and Sobreira de Cima, and much less with the idea of keeping it stored and protected, out of the people's yes. It should also be highlighted that our option in using a very conservative sample containing residents only and thereby ignoring the non-residents, might be an additional explanation for the low level of the estimated WTP mean. Indeed, CV literature shows that non-residents tend to state higher WTP bids than the stated by residents. Should the former being included in the sample, the estimated mean WTP and therefore TEV may rise. Finally, we also may conclude that in spite the presence of restrictions like the ongoing Portuguese financial situation; the program's funding restrictions; the intangibility nature of some of the archaeological knowledge at stake; and the out – of - placement of part of it, inhabitants still recognize it as an important issue deserving as such an investment from society. Residents revealed a strong qualitative support for the Sobreira de Cima and Brinches Rescue Archaeological knowledge's Valorization Program and they were able to concretize it by stating their willingness to increase their monthly expenditures to financially contribute to the program; i.e., they revealed to have a relatively strong willingness to contribute to turn the hypothetical scenario of creating a management entity aimed at designing, implementing and managing the entire program a reality. They were willing to co-finance mainly for the sake of the future generations and because they think the archaeological finds ought to be preserved for the benefit of the population. The majority of people refusing to WTP, do it as a protest against taxes or tax governmental



policy, rejection of the hypothetical scenario or of the vehicle of payment and not as a real rejection of the program. It must be outlined that only 0.8% of the sampled individuals declare the program to be not important from the qualitative point of view, with more than 60% having the perception that the program is, at least, important. However when they were confronted with the idea of having to make a trade-off between the program implementation and an amount of euros, more than 70 % declare not to be willing to participate in the trade-off and mostly do it for protest reasons only. Hence, the welfare of a high number of inhabitants seems not to be particularly affected by changes in archaeological goods and services, therefore being not very interested in spending money with the issue. The current estimates may be used as decision support, insofar as they allow quantifying monetarily the range of non-market social benefits that are so important for the society, but who are always neglected in cost benefit based appraisal. How many projects revealing high market values in what private interests are concerned, but of doubtful value under the social perspective, are approved? The ultimately result of this systematic decision-making process geared to the imperative logic of the private interests, is the adoption of highly profitable projects in the short-run from the private point of view, although potentially negative in the long-run from the social point of view. The WTP and TEV estimations may therefore be used to conduct more socially friendly cost-benefit analysis, therefore showing the feasibility of the “Creation of a non-profit institution” whose main aim is the design, implementation, managing, and appraisal of the Valorization Program for the Knowledge Collected by Rescue Archaeological Activities at Brinches and Sobreira de Cima having in mind to promote local sustainable development.

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