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## 31. Preliminary valuation of a cultural heritage site of global significance: a Delphi contingent valuation study

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### INTRODUCTION

The relatively few studies that have tried to estimate the economic value of preserving and restoring cultural heritage show that these public goods have substantial social benefits (Navrud and Ready, 2002; Noonan 2003), and that the social benefits of restoration and preservation can exceed the social costs (Tran Huu and Navrud, 2008). A review of cultural heritage valuation studies show mean annual willingness-to-pay (WTP) per household for heritage access or conservation varying from 0.01 per cent to 0.3 per cent of per capita GNP (gross national product)(Pearce et al., 2002). Benefits may derive from the use of the resources (e.g. visiting historic cities, buildings, monuments and archaeological sites), or may be unrelated to any use but simply arise from the knowledge that cultural heritage exists, that they will be available for enjoyment by other people, future generations and for our own possible future use. These latter non-use (or passive use) benefits may well extend beyond country borders, and have been found to make up a significant portion of the total economic value of cultural heritage.

Environmental valuation techniques like the Revealed Preference Techniques of the Travel Cost (TC) method and the Hedonic Price (HP) method can be used to value cultural heritage, but Stated Preference Methods (SP) like the Contingent Valuation (CV) method, seem to be most appropriate in terms of their capability of capturing the potentially largest benefit component; the non-use values.

Most of the research on SP methods has focused on the accuracy of estimated mean or median WTP per household, and developing best practice protocols to achieve this (Arrow et al., 1993; Carson, 2000). However, relatively little attention has been paid to the issue of how to determine the geographical area and number of households affected (in terms of potential loss or gain in their utility) by the change in the quality or quan-

tity of the public good in question. This might be a straightforward task for local goods like an urban forest. However, for regional and national public goods like air quality and national parks, it is not nearly as easy to determine the size of the affected population, and the uncertainty of this estimate might have a much larger impact on the aggregate WTP than the uncertainty surrounding the mean WTP estimate.

For some public goods, the geographical area affected could potentially be the whole world. Examples include climate change, extinction of species and cultural heritage sites of international significance. Thus, a CV study designed to estimate the value of global goods should ideally cover a representative sample of the world's population. However, this will be very costly and time consuming, and will in most cases not be a realistic option for input into decision-making on the management and preservation of these goods. In this chapter we develop and test a method to value global public goods which combines the ability of CV to obtain an estimate of the total economic value of a prospective change in a public good, at low cost and in a short time horizon using the Delphi method. It should be emphasized at the beginning that this will only be a very rough estimate but it may be useful for many policy questions where some notion of magnitude may help inform decisions on what future research should be undertaken to reduce uncertainty in estimates, given available resources and time constraints.

The Delphi method is, in its simplest formulation, a solicitation of the opinions of experts. Underlying the Delphi method is the belief that experts have considerable knowledge that is not embodied in existing studies but is likely to be useful in making informed judgments about a particular question. In our case, we used a sample of European environmental economists acquainted with CV studies, and asked them to predict the outcome of a CV survey in terms of mean and median WTP per household for a specified change in a global public good among households in their own country and among all European households.<sup>1</sup> Delphi studies tend to differ on whether they ask for the expert's recommended course of action or on predicting an outcome if some action was taken. Our study falls into this latter category, consistent with the Oracle at Delphi in that we ask our experts for their best guess about individual preferences for a public good if a CV survey were to be carried out. The results of our Delphi study are potentially verifiable since they could be compared to a CV survey of a representative sample of the European population. Also, since our Delphi study asks experts about summary statistics related to their beliefs about the configuration of individual preferences in the population of interest, the estimated values should be consistent with welfare theory and its applied tool cost-benefit analysis (CBA).

We conclude that such Delphi exercises constitute a very time- and cost-effective way of finding the magnitude of the value of cultural heritage sites of international and global significance where their unique nature often implies that there is little in the way of close comparisons that could be drawn upon for a benefit-transfer exercise. Performed on cultural heritage sites at risk and in need of restoration and/or preservation, these Delphi studies could provide estimates of social benefits that could be used to rank cultural heritage sites in terms of benefit–cost ratios of programmes designed to restore and/or preserve these public goods. Methodological issues that would need to be addressed more closely to use results like ours for policy purposes include: sequencing effects, classification of cultural heritage objects in terms of determining which sites are perfect or very close substitutes and thus the relative scarcity of a site, and how the value of a site would develop over time in the face of increased income per capita, destruction of known cultural heritage sites and discovery (and creation) of new sites.

## CULTURAL HERITAGE SITES AS GLOBAL PUBLIC GOODS

The public good used for this Delphi exercise is the old city of Fes in Morocco. The Fes Medina was added to the UNESCO list of World Heritage Sites in 1980. The site is thus recognized as a site of ‘outstanding universal value’ whose protection is the duty of the international community as a whole and form part of the common heritage of humankind. The Fes Medina and the other more than 500 natural and cultural heritage sites on the UNESCO list must therefore be considered as global, public goods, as they are preserved not just for individual nations but for all humanity. In theory, every household in the world could have a positive WTP to preserve the Fes Medina, but it is also possible that every household outside of Morocco has a zero WTP.

The city of Fes is the oldest of Morocco’s four imperial cities. Its founder, Idris I, established it around AD 789. By the eleventh century, under the Almoravids, Fes had become a major Islamic city. Although it reached its zenith as a centre of learning and commerce under the Marinids in the mid-fourteenth century, it has continued to serve as an important religious centre for Morocco and the Islamic world. A notable feature of the city today is that its medina retains a great deal of its ancient cultural and economic integrity. The oldest portion of the Fes Medina, Fes el-Bali (the name means old city) is the home of more than 100 000 inhabitants whose 12 000 or more traditional houses are still partially surrounded

by the ancient battlements. Its numerous narrow, twisting streets are lined by hundreds of small shops and workshops where traditional crafts are pursued; and where streets are crowded with people and the animals that carry goods to shops and workplaces. It contains the oldest mosque in northern Africa, a famous Islamic university founded in AD 859 and numerous other culturally important buildings and fountains. The Fes el-Jedid, while called the 'new' city, actually dates back to the thirteenth century. It contains the Royal Palace and the adjoining Great Mosque as well as the old Jewish quarter.

The Fes Medina's cultural heritage is a world-renowned attraction for tourists but it is also threatened by substantial degradation. In 1997, as part of the studies undertaken to develop a strategy for the rehabilitation of the non-monumental built environment in the Fes Medina, the Harvard Graduate School of Design and Morocco's Agence Pour La Dedensification et la Rehabilitation de la Medina de Fes published a report (1997) proposing a comprehensive strategy for the rehabilitation of the Fes Medina. This strategy seeks to halt the Medina's structural and economic decline by an array of interventions carefully designed to retain both its historic character and its economic vitality.<sup>2</sup> Based on this strategy, components for immediate action were detailed and the project prepared and submitted to the World Bank for funding. This chapter reports the Delphi exercise conducted to measure a part of the economic benefits created by the project's successful completion, which is seldom measured; i.e. the benefits to foreigners not visiting Morocco. Benefits also accrue to Fes residents, other Moroccans, foreign visitors to Fes and Morocco, which have been measured in other studies (Carson et al., 1997a). Benefits may accrue to foreigners not visiting Morocco due to passive use considerations (Krutilla, 1967; Carson et al., 1997b). These considerations include an appreciation for the existence of the cultural resources in Fes or a possible desire to visit Fes in the future. One would expect economic benefits from such considerations on a household basis to be lower than for those living or visiting Fes. However, due to the much larger number of households in the group of foreign non-visitors to World Heritage sites of global significance even very low per-household benefits may translate into large aggregate contributions to the total benefit estimate. This effect, inherent in the nature of public goods, raises important issues about the choice of the order in which goods are valued (Hoehn and Randall, 1989; Carson and Mitchell, 1995).

In our Delphi study of foreign non-visitors, we concentrated on Europe because over 90 per cent of foreign visitors to Morocco were Europeans, according to the World Tourism Organization. Conceptually it would have been possible to look at benefits to non-visitors in other parts of the world, but resources did not permit such an exploration.

## THE DELPHI METHOD

Most Delphi exercises administer one or more questionnaires interspersed with information from a group of experts. Typically, the experts are polled one or more times; and between pollings, information about the opinions of the group of experts as a whole is disseminated among the group.<sup>3</sup>

The Delphi method is commonly held to have been developed at the RAND Corporation during the 1950s and 1960s. It is one of a group of so-called *think-tank tools*.<sup>4</sup> During the 1960s and the early 1970s, the method underwent much research and use. By the early 1970s, hundreds of studies had appeared all over the world (Sackman, 1975). During the mid-1970s, methodological development seemed to stall; perhaps due to strident criticism of the method as unscientific and of its results as speculative (Sackman, 1975).<sup>5</sup> The critique seems to have been rebutted to the satisfaction of many (e.g. Ziglio, 1996). In any event, since the 1970s the method has seen much use in a wide variety of contexts as a way to elicit specific information in contexts where that information is clearly needed and not readily obtainable in other ways.

In a given case, the Delphi method is typically used for one of two distinct and mutually inconsistent purposes: either consensus building or characterizing the distribution of expert opinions to derive the expected value and to characterize the uncertainty around that expected value. These goals and strategies are not always scrupulously distinguished and embodied in the implementation. The first of these goals, the reaching of a consensus among the participants, may be achieved by moving the participants toward consensus explicitly as when the participants are asked or directed to develop a consensus or more subtly through the design of the exercise. The second possible goal is to develop a distribution of opinions of the participants as representative of the distribution of all experts in the field. Like all such distributions, measures of central tendency and dispersion or uncertainty can be constructed. These provide a picture of the state of expert knowledge of the issue in question. For the strategy employed here, it is useful that *undue* influence of the other participants be avoided.

If a judgment is based on the available information and some of that information is comparative information on the opinions of the other Delphi participants, there is an implicit intent that each participant uses such information in assessing the correctness of his or her own judgment. According to Sackman (1975), the independence of the measures has been lost once the results of the first round are shared with the participants.<sup>6</sup> The importance of his point depends on the vantage point. From a psychological vantage point, the provision of this information introduces framing effects as well as a group dynamic that may impel the participants toward

consensus. However, from the information standpoint long accepted in economics and statistics, if each expert has independent information useful for deriving a forecast, then second-round estimates are properly influenced by the first-round information. From this viewpoint, additional rounds may not be fruitful unless new information is introduced into the process. The relevant issue here is which set of measures is the more accurate, the measures based on Round 1 or those based on Round 2. Thus we present the results of both rounds performed in our study.

Furthermore, in this study, the experts are asked *not* about their own opinions concerning the value of the restoration of the Fes Medina, but rather for their professional judgments as to what they would expect the estimate of the non-market economic value to be in their respective countries and in Europe, as a whole, if a CV study concerning restoration of the Fes Medina were to be conducted. To help put this task in perspective, it is similar to asking a group of professional political pollsters to predict how people in their country and in Europe, as a whole, would likely respond to survey questions describing new potential policies that could be adopted.

## REASONS FOR USING THE DELPHI METHOD

Several conditions might prescribe a Delphi study of an issue such as the one at hand. First, a Delphi study could be useful in the initial stages of developing an analysis plan or when a decision has to be made quickly on the basis of limited information and before an original study could be conducted. Second, it could be used when the information requisite for a more formal benefits transfer exercise is inadequate.<sup>7</sup> In some cases, data may be completely missing or even uncollectible in principle, but more commonly some arguably relevant data is available but the assumptions required to construct any sort of model make the model of dubious or even negative value. In such a case, a benefits transfer requiring extreme assumptions may have the appearance of rigor without the actuality of it, and a Delphi exercise may provide a more defensible result. Third, if funding or time is not available for the collection of original data, this survey of experts may be the only way to develop an estimate of the value. Fourth, a Delphi study might obviate the need for a larger more rigorous study if the threshold for a decision was outside the distribution of values obtained in a Delphi exercise. Finally, at the beginning of a large study collecting original data, one might at (low cost) estimate the values expected by experts and the distribution of these expectations. For a CV study using a discrete-choice format, good initial estimates of the monetary amounts are necessary for the design of the choice amounts.

## USING THE DELPHI METHOD TO MEASURE INDIVIDUAL PREFERENCES

This Delphi exercise was conducted using a stratified random sample of 30 attendees at the June 1997 meeting of the European Association of Environmental and Resource Economists (EAERE) in Tilburg, the Netherlands. This meeting was chosen because it was likely to contain the largest concentration of European economists familiar with CV. Two attendees from each of the EU-15 countries plus Norway and Switzerland were selected from those familiar with CV studies.<sup>8</sup> Participants in the Delphi exercise were each paid US\$100 to help compensate them for their professional time and to ensure a timely response to the Delphi instrument.

The Delphi exercise was based on the instrument developed for the Fes Medina Foreign Tourist Contingent Valuation Study (Carson et al., 1997a). The description of the good and the visual aids were taken directly from that study. The instrument used a one-time tax-payment mechanism to have each Delphi participant assess the mean and median household WTP of that participant's home country and the mean and median household WTP for of all Europe. Household-based proportionate weights for each of the various countries were provided to the Delphi study participants (see survey instruments for Round 1 in Appendix 31A).<sup>9</sup>

After the first round of data was collected and examined, the participants were contacted by e-mail and fax and provided with the results of the first round. In Round 2, the participants were asked to reassess their earlier answers in light of the results of the first round. An important aspect of this second request for estimates was that we did not encourage participants to achieve a 'consensus', as is the case in many Delphi exercises. Nevertheless, it should be noted that expert estimates in many Delphi exercises show a tendency to converge to one or two modes in the distribution of estimates from the previous round.<sup>10</sup>

## CHARACTERISTICS OF DELPHI PARTICIPANTS

Of the 30 participants in the Delphi exercise, 22 had PhDs and 8 had master's degrees. The mean number of empirical CV studies in which the participants had worked was 3.8. The distribution of empirical experiences was quite skewed with the median being 1 study, the minimum being 0 studies, and the maximum being 26 studies. In this regard, the participants range from young PhD candidates working on non-market valuation issues to some of Europe's most experienced CV researchers. Over half of the participants had also worked on empirical studies using other non-

market valuation methods. Most, but not all, of the participants rated themselves as quite familiar with the method; median familiarity rating on a 10-point scale (10 = very familiar) was 8. The mean amount of research time the participants spent on CV topics was 30 percent, and the median amount of research time spent on CV topics was 10 percent. Almost all of the participants in this Delphi exercise read one or more of the main journals that publish CV research on a regular basis.<sup>11</sup>

## RESULTS OF THE DELPHI EXERCISE RELATED TO IMPLEMENTING A FEZ CV SURVEY

Most of the participants in the Delphi exercise indicated that implementing a CV study in Europe to value the Fes Medina improvement project would be of moderate difficulty (mean = 5.7, median = 5; inter-quartile range = 4 to 8) on a 10-point scale (10 = very difficult). As one would have expected, this task was judged considerably more difficult than implementing a CV survey to value a cultural resource located in the participant's own country (mean = 2.8, median = 2, inter-quartile range = 2 to 3) which in turn was judged a more difficult task than the most common use of CV to value a recreational activity in the participant's own country (mean = 2.4, median = 2, inter-quartile range = 1–3).

We asked participants three questions we thought might be useful in actually carrying out a Fes CV survey in Europe. The first of these questions asked participants what empirical studies would be useful in making reasonable initial WTP estimates. The responses to this question helped reveal the types of amenities they thought to be similar in some relevant way to the Fes Medina project and revealed references to several unpublished studies on valuing cultural resources using CV.<sup>12</sup> The types of amenities mentioned fell into three main classes: cultural resources, areas of particular ecological importance and policies involving improving the welfare of another group of people. Navrud et al. (1995), was the most commonly noted CV study, and involves a cultural resource in Norway (i.e. preserving an ancient church). Also mentioned was a Danish CV study (Bille-Hansen, 1995) involving the Danish Royal Theatre; and then ongoing CV studies looking at cultural resources in Bulgaria, Portugal, and Spain. With respect to ecological resources, most commonly mentioned were the studies of national parks in Kenya (Moran, 1994; Navrud and Mungatana, 1994). The last class could be described as CV studies of values people in one area are willing to pay to help solve a problem in another area. Perhaps the most directly relevant study mentioned was Kramer and Mercer (1997), which looked at what a sample of Americans



were willing to pay to help preserve tropical rainforests. Several participants also mentioned studies involving acid rain, endangered species and regional development projects.

The second question asked participants what studies (other than those mentioned in the previous question) would be helpful in carrying out an empirical CV study of the Fes project in Europe. The need to look at statistical models such as those proposed by Hanemann and Kriström (1995), which would correctly handle a 'spike' at zero, was frequently mentioned. These suggestions to look at spike models were consistent with the predictions made by many participants (see next section) that median WTP for the Fes project would be zero. The other papers noted by participants concerned standard general treatments related to CV survey design.

The third question asked participants what major problems they would anticipate if a Fes CV survey was administered in Europe. Two issues were raised by a large number of participants. The first issue raised was that many people in Europe were likely to be unfamiliar with the Fes Medina. While such valuation of goods that respondents lack familiarity with is often handled in CV surveys, it is clear that such goods tend to require substantially more survey development work. In particular, a fairly long survey instrument is usually necessary in such cases in order to convey the necessary information. Several specific suggestions were made that the key concept to convey was what a World Heritage site was and why such sites were designated. Cross-cultural issues related to developing a survey that was understood in the same way across all of the European countries was seen by several participants as a challenging task.

The second issue raised was not as standard. Some participants saw no 'coercive' payment vehicle as being plausible for a 'European' study. This might tend to push the design toward a voluntary contribution mechanism, which might seem more natural in this case. However, several participants pointed out the free-riding opportunity presented by such a mechanism and the consequent problems that might occur with its implementation in a CV study. In part, the problem of the payment vehicle was seen to lie with the lack of a European-wide tax structure for which payment for a Fes Medina rehabilitation plan could be coercively attached and, in part, with the small size of the Fes Medina rehabilitation plan as a separate policy decision by the European Union or even specific European countries. As one participant pointed out, the Fes Medina rehabilitation plan would more naturally come as part of a larger package of foreign aid aimed at World Heritage sites in developing countries.

Participants pointed out a number of other potential problems. These include the possibility of protest responses related to (1) the argument that the Moroccan government and/or tourists to Morocco should be paying

for the cost of the Fes rehabilitation project, (2) the political situation in Morocco or North Africa more generally and (3) a belief that the proposed tax would not last only 1 year. A couple of participants suggested that some people would be skeptical that the money would actually go to rehabilitate the Fes Medina, while one participant suggested that there might be a lack of trust in the European Union with respect to their role in helping to fund the project.

## RESULTS ON EUROPEAN WTP FOR REHABILITATION OF THE FEZ MEDINA

The first round of the Delphi exercise provided some interesting statistics. Some 47 per cent estimated that their country would have a higher mean WTP than Europe as a whole. For their country, 30 per cent estimated a median WTP of zero; and 17 per cent estimated a median WTP of zero for Europe as a whole. Unsurprisingly, 93 per cent estimated that mean WTP would be greater than median WTP for their country; the average ratio of median WTP to mean WTP for their country is 52 per cent. Similarly, for Europe as a whole, 90 per cent estimated that mean WTP would be greater than median WTP; and the average ratio of median WTP to mean WTP for Europe as a whole is 53 per cent.<sup>13</sup>

In the second round, these numbers changed. Fourteen participants changed their median European estimate: four increased their estimate and ten decreased their estimate. Sixteen participants changed their mean European estimate: seven up and nine down. The number of participants who thought that their country would have a higher estimate than Europe as a whole decreased slightly from 47 per cent to 43 per cent. Finally, the number of participants estimating that mean WTP would be greater than median WTP for their country increased from 93 per cent to 100 per cent; and the average ratio of median WTP to mean WTP for their country dropped from 52 per cent to slightly less than 40 per cent. Overall, the fact that roughly half of our participants did not change suggests that participants did not feel pressured toward a consensus. And, that roughly half of our participants did change in ways that seemed reflective of information conveyed, in the first round, suggest that seeing the aggregate views of the experts as a whole was useful to some in formulating a second round response.

Table 31.1 and Figure 31.1 display the results of the first and second rounds of the Delphi exercise with respect to prediction of the *mean* WTP<sup>14</sup> for a one-time payment if a Fes CV instrument were to be administered in Europe. These results show a downward shift in the mean estimate of

Table 31.1 *Mean WTP estimates from Delphi exercise*

| Round               | Mean US\$ | Std Error | Median  | Max.     | Min.   |
|---------------------|-----------|-----------|---------|----------|--------|
| Mean-Europe Round 1 | \$16.92   | \$4.85    | \$10.28 | \$138.25 | \$0.10 |
| Mean-Europe Round 2 | \$12.17   | \$2.36    | \$9.04  | \$50.00  | \$0.10 |

mean WTP (in US dollars) from \$16.92 in the first round to a mean of \$12.17 in the second round. Much of the reduction comes from downward revisions by a few respondents who gave quite large initial mean WTP estimates. The median estimate of mean WTP decreases only slightly from \$10.28 in the first round to \$9.04 in the second round. The mean and median estimates of mean WTP are now closer in the second round, \$12.17 versus \$9.04.

Table 31.2 and Figure 31.2 display the results of the first and second round of the Delphi exercise with respect to estimating the median WTP for a Fes CV survey conducted in Europe with a one-time payment. Here the mean estimate of median WTP has fallen dramatically from \$12.27 to \$5.86. The median estimate of median WTP has fallen from \$3.12 to \$2.15. The shift in the estimates here is much more systematic than that for estimates of mean WTP. In Round 1 of the Delphi exercise, 17 per cent believed that the median WTP estimate would be

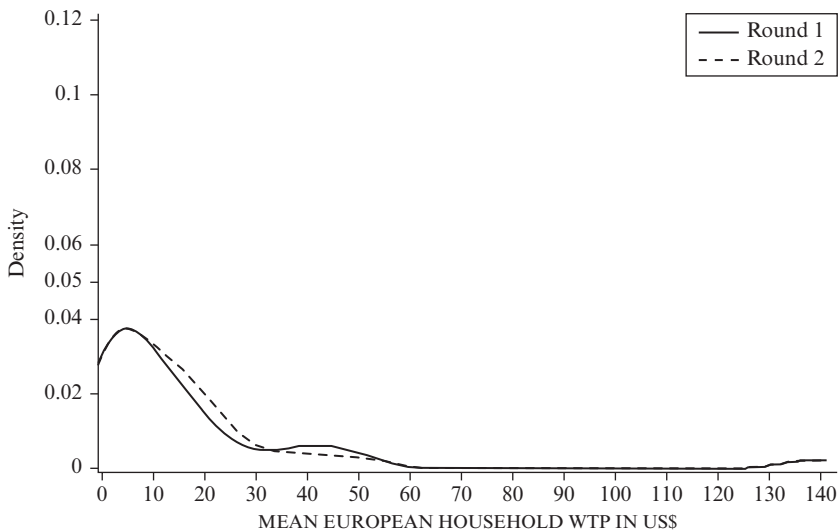
Figure 31.1 *Delphi estimate of European mean WTP*

Table 31.2 Median WTP estimates from Delphi exercise

| Round                 | Mean US\$ | Std Error | Median | Max.     | Min.   |
|-----------------------|-----------|-----------|--------|----------|--------|
| Median-Europe Round 1 | \$12.27   | \$4.27    | \$3.12 | \$115.21 | \$0.00 |
| Median-Europe Round 2 | \$ 5.86   | \$1.75    | \$2.15 | \$ 42.00 | \$0.00 |

\$0.00, while in Round 2, 29 per cent believed that median WTP would be \$0.00.

The number of households to which these estimates should be applied to calculate aggregated benefits is approximately 144 342 000 (Eurostat, 1997). Based on the estimates for the mean WTP per household of US\$12.17–16.92 (Table 31.1.), the aggregate benefits to Europeans for restoring the Fes Medina is US\$1.76–2.44 billion. Corresponding estimates based on the median WTP per household of US\$5.86–12.27 (Table 31.2) is somewhat lower, US\$0.85–1.77 billion.

It may be useful to compare our Delphi estimates for Europe to those from a CV survey of foreign visitors to Fes (Carson et al., 1997a). To do this we need to make strong assumptions, and interpret our one-time payment as the present value of a stream of annual payments. The estimated annual aggregate benefits of foreign visitors to Fes and other parts of Morocco amounts to US\$0.01 and US\$0.05 billion, using the median

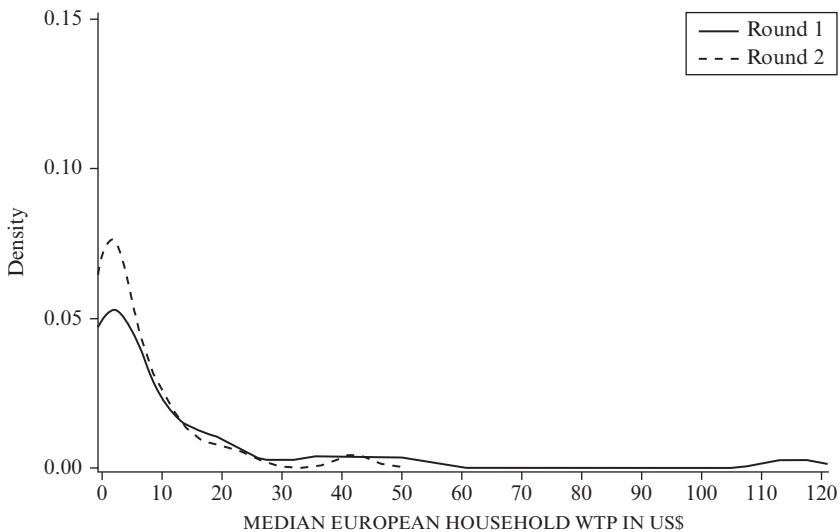


Figure 31.2 Delphi estimate of European median WTP

and mean WTP, respectively. If we assume that these annual benefits would accrue over an infinite time period at a 7 per cent discount rate (a rate commonly used by government agencies at the time), the net present value would be US\$0.86 billion (US\$0.14 billion for foreign Fes visitors (assuming all are European) versus US\$0.72 billion for foreign non-Fes visitors (assuming all are European and that actual Fes visitors are an ignorable fraction of the European population in any given year). This comparison emphasizes the notion that while the WTP of European visitors to Fes is quite high, the number of European visitors to Morocco is quite small relative to the population of Europe. As such, the passive use value by Europeans becomes the dominant factor in an aggregate WTP calculation. This clearly shows the large impact on aggregate benefits for global public goods that can result from including passive use values over an extended geographical area.

There is a substantive problem with thinking about the Fes Medina project from an annual payment perspective. The Fes Medina was the first of a series of UNESCO World Heritage sites in developing countries that the World Bank was asked to help develop restoration and preservation plans for. Following Hoehn and Randall (1989) it is clear that adding up independently derived WTP values will lead to an overestimate which can be substantially misleading because each estimate is derived as if it is first in a sequence of projects that involve income effects. Allowing for annual payments relaxes respondent budget constraints (and hence increases WTP estimates) as well as making it difficult to keep track of payment streams for projects. It is more straightforward to either value projects as a package or to value them in a well-defined sequence (likely determined by the agency) and have respondents making one-time payments for each.<sup>15</sup>

## CONCLUDING REMARKS

Our Delphi results should be considered as preliminary estimates and be used with some caution. Our cultural heritage scenario was relatively new at the time and there was very limited work on which the Delphi participants could base their opinions. However, this is the situation where a Delphi study is likely to be of the most use since it is not possible to conduct a straightforward benefit-transfer exercise. Furthermore, there are a large number of possible projects with which the Fes Medina restoration might be seen to be in competition for funding. The best use of these numbers is to indicate that Europe has a fairly high magnitude of WTP for restoration of the Fes Medina.

The Delphi estimates of mean WTP is substantially higher than median

WTP suggesting that the distribution of public WTP would be highly skewed. Indeed, about 30 per cent of the participants expect the median to be zero. While a highly skewed distribution of public values for a non-local cultural resource that few will ever visit seems reasonable, it poses certain difficulties in fashioning an appropriate payment mechanism. This amount of skew indicates that the values for the restoration of the Fes Medina are not likely to be broad based in the public. This lack of broad-based value will make it difficult to design any compulsory payment mechanism that would have widespread public support. The only alternative to some sort of compulsory mechanism would be some variant of a voluntary contribution approach. While such a mechanism would enjoy widespread public support, it is not a practical way to extract Europe's WTP for restoring the Fes Medina as it likely would be plagued by widespread free-riding.

Since the Delphi exercise participants were asked to predict individual preferences in terms of an outcome of a CV survey, the estimated WTP could be verified by conducting a Europe-wide CV survey using the same scenario. Since such a study has not yet been performed, we are left with comparing our results with CV surveys of similar cultural heritage sites. However, there were very few studies applying the CV method to cultural heritage and none of these studies dealt with foreign non-visitors to global cultural heritage sites (Navrud and Ready 2002).<sup>16</sup> Three studies of other cultural heritage sites on the UNESCO list that our study can be compared to include: Bulgarian monasteries including the World Heritage Site of Rila Monastery (Mourato et al., 2002); Stonehenge in the UK (Maddison and Mourato, 2002) and the historic core of the city of Split, Croatia (Pagiola 1999). While Pagiola (1999) interviewed only residents of Split and tourists visiting Split, both Mourato et al. (2002) and Maddison and Mourato (2002) interviewed a representative sample of the national population in Bulgaria and the UK, respectively. None of these studies are directly comparable to the estimates from our Delphi exercise, since the samples contain a large portion of users (even in the two national samples), the CV scenarios are different, the cultural heritage objects are different, and income levels (especially for residents in the transition economies of Bulgaria and Croatia), and thus their ability (and potentially) also their WTP may be substantively different from the European countries in our sample. It is, however, interesting to note that in the last two studies, the national household has a WTP in the order of 0.01 per cent of the mean GDP per household, while in our Delphi exercise foreign households are predicted to have a WTP of about half that amount.<sup>17</sup> Another CV study of a historic part of a city found an annual mean WTP per household among local residents equal to 0.096 per cent of mean GDP per capita. Garrod and coauthors (Garrod et al., 1996;

Garrod and Willis, 2002) found that a sample of local residents in Newcastle upon Tyne in the UK on average were willing to pay US\$20.50<sup>18</sup> annually in extra council taxes towards the renovation and restoration of historic buildings in the Grainger Town area of Newcastle. Thus, the results from our Delphi study seems reasonable in terms of yielding lower WTP than local residents valuing the historic part of their city, and a national sample of households valuing a World Cultural Heritage site in their own country.<sup>19</sup>

To conclude, it appears that Delphi exercises like ours can produce reasonable estimates of benefits to foreign non-users of global public goods in a cost-effective way and, in a short time, in cases where a preliminary estimate of value is needed. At that point, a decision would need to be made as to whether this preliminary estimate would suffice or whether it was desirable to proceed further down the path of obtaining an actual estimate of WTP from the population of interest. If this were the case, our implementation of a Delphi exercise reveals some further benefits that we had not initially considered. The first of these has already been noted. Our Delphi exercise quickly revealed that there were relevant studies in unpublished literature and that there were CV surveys on other cultural resources that were then in the field that one would want to consider in undertaking a study in Europe valuing preservation of the Fes Medina. The second benefit has also been noted: our Delphi participants were able to clearly lay out the set of design issues that they thought would be relevant to conducting the CV study they were asked to predict the values for. Third, if such a study were undertaken the distribution of WTP from the Delphi study might well serve as the initial prior for a bid design in a study using a discrete-choice elicitation format.

Ideally, the validity of Delphi exercises like ours would be tested further. The ultimate test in our case would be to conduct a Europe-wide CV study using the same scenario. This would enable us to clearly see the trade-off between increased uncertainty of the benefit estimate from the much less costly and time consuming Delphi exercise versus the costly, time consuming CV survey. Then the costs of making the wrong decision if benefit estimates are based on Delphi exercises versus the additional costs of getting a less uncertain CV estimate (and making the right decision) could be considered. Since the sample size will be a major determinant of the costs of in-person CV surveys (especially of a global survey), experiments with different sample sizes and the impact on the benefit estimate should also be performed. Pursuing this line of reasoning further, one might consider combining Delphi estimates with limited samples sizes or samples collected from modes of survey administration that are more rapidly deployed than in-person surveys.

## ACKNOWLEDGEMENTS

We would like to thank the World Bank for financing this Delphi exercise and the thirty European environmental economists participating in it. Ståle Navrud would also like to thank the Department of Economics, University of California, San Diego for hosting him as a visiting scholar when this study was performed. The usual disclaimer applies.

## NOTES

1. In our study, Europe is defined as the member countries of the European Union (by 1997) together with Switzerland and Norway.
2. A brief summary of Fes history and the Rehabilitation Project may be found in Darles and Lagrange (1996); a more complete account of the history and the current culture of the Fes Medina can be found in Escher and Wirth (1992).
3. Ziglio (1996) describes the procedure as follows: in most applications, the first questionnaire (Q1) poses the problem in broad terms and invites answers and comments. The replies to Q1 are summarized and used to construct a second questionnaire (Q2). Q2 presents the results of Q1 and gives the respondents an opportunity to re-evaluate their original answers in the light of comprehensive feedback on the responses of the whole group. During this interactive process, which can be repeated as many times as are judged appropriate in the circumstances, issues can be clarified, areas of agreement and disagreement can be identified and an understanding of the priorities can be developed.
4. Some other such techniques are Cross Impact Analysis and the Nominal Group Technique.
5. Sackman (1975) argues that the purported advantages of the Delphi method – serves a popular demand for expert opinion, convenient, low cost, simplicity – are inconsequential because the results are inherently untrustworthy.
6. Sackman (1975) specifically notes: ‘The first round is basically designed to secure independent expert judgment. The second and successive rounds produce strictly correlated, or biased, judgments. All rationalizations about reconsidering, incorporating new information, and converging toward consensus, cannot hide the fact that independent judgment is destroyed once the participant knows how others have responded to each item.’
7. For a discussion of the issues involved in conducting a benefit transfer exercise; i.e. transferring benefit estimates from one site to another within or between countries, see Navrud and Ready (2006, 2007). See also Tran Huu et al. (2009) for a validity test of benefit transfer for cultural heritage sites.
8. This objective was achieved with the following exceptions. Only one EAERE meeting attendee with a reasonable level of knowledge of contingent valuation was available for Greece and only one for Ireland. We were unable to find any knowledgeable meeting attendee from Luxembourg.
9. Seventeen countries were included. Unfortunately, the Netherlands was inadvertently omitted from the countries listed in the survey instruments. However, it is unlikely that this had any significant impact on the answers.
10. The Round 1 and 2 Delphi instruments are contained in Appendix 31A. All 30 participants responded in Round 1, and 28 of them responded in Round 2.
11. Not surprisingly given the conference from which our sample was selected, the journal of the Association of Environmental and Resource Economists, *Journal of Environmental Economics and Management*, and the journal of the European Association of Environmental and Resource Economists, *Environmental and Resource*



*Economics*, were both read on a regular basis by over 90 per cent of participants in the Delphi exercise. *Land Economics* was the third most followed journal with 77 per cent indicating they read it on a regular basis, while 57 per cent read the *American Journal of Agricultural Economics*, 51 per cent read *Ecological Economics* and 27 per cent read the new *Environment and Development Economics*.

12. The answers to this question suggest another potential use for a Delphi exercise – casting a wide net as to the possible studies that might be used for a formal benefit-transfer exercise when there is not an obvious set of close comparison studies in terms of the resource of interest in the published literature.
13. These statistics, as well as the first round statistics in Tables 31.1 and Table 32.2, were provided to the participants for the second round. Note that participants who did not report mean WTP values higher than median WTP values usually reported those two estimates to be equal in magnitude.
14. Exchange rate used US\$1 = 0.868 euros in 1997.
15. Being able to make periodic payments is, of course, appropriate where the respondent would be getting a service such as better quality drinking water that could be taken away if payment was not forthcoming. This is often not the case with a major cultural heritage site like the Fes Medina where a major one-time project is proposed.
16. The base of CV studies has increased dramatically (Carson, 2011) from the time we conducted our Delphi exercise but there are still no studies of cultural resources that would allow one to draw a reasonably direct inference. Further, the range of non-marketed goods for which policymakers would like to have monetary estimates seems to always be increasing, implying that situations will always exist where it may be possible to conduct a Delphi exercise but not a formal benefits transfer exercise.
17. Mean GDP per capita in our sample of countries; EU member countries (by 1997) and Norway and Switzerland was US\$22 566, calculated from World Bank (2000). Mean WTP from the second round of responses was US\$12.17 per household, i.e. 0.005 per cent of per capita GDP (see Table 31.1).
18. GB£1 = US\$1.49 (exchange rate August 2000).
19. A review of CV surveys valuing cultural heritage found that a larger proportion of zero answers seem to be more common in these CV surveys valuing cultural heritage than those valuing environmental goods (Mourato and Pearce, 1999). This can also be seen in our Delphi exercise, adding credibility to the results of our exercise.

## REFERENCES

- Arrow, K., R. Solow, P.R. Portney, E.E. Leamer, R. Radner, H. Schuman (1993), *Report of the National Oceanic and Atmospheric Administration Panel on Contingent Valuation*, 58 Federal Register, 4601–4614.
- Bille-Hansen, T. (1995), *Valuing the Danish Royal Theatre*, PhD dissertation, University of Copenhagen, Denmark.
- Carson, R.T. (2000), 'Contingent valuation: a user's guide', *Environmental Science and Technology* 34, 1413–1418.
- Carson, R.T. (2011), *Contingent Valuation: A Comprehensive Bibliography and History*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Carson, R.T. and R.C. Mitchell (1995), 'Sequencing and nesting in contingent valuation surveys', *Journal of Environmental Economics and Management*, 28, 155–173.
- Carson, R.T., R.C. Mitchell, M.B. Conaway and S. Navrud (1997a), *Non-Moroccan Values for Rehabilitating the Fes Medina*, A Report to the World Bank on the Fes Cultural Heritage Rehabilitation Project, 21 August 1997.
- Carson, R.T., N.E. Flores and R.C. Mitchell (1997b), 'The theory and measurement of passive use value', in I. Bateman and K. Willis (eds), *Valuing Environmental Preferences*:

- Theory and Practice of the Contingent Valuation Method in the US, EC and Developing Countries*, New York: Oxford University Press.
- Darles, G. and N. Lagrange (1996), 'The Medina of Fez: crafting a future for the past', *The UNESCO Courier*, October 1996, 36–39.
- Escher, A. and E. Wirth (1992), *Die Medina von Fes. Geographische Beiträge zur Persistenz und Dynamik, Verfall und Erneuerung einer traditionellen islamischen Stadt in handlungstheoretischer Sicht*, Erlanger Geographische Arbeiten, Heft 35, Erlangen, Germany: Selbstverlag der Frankische Geographischen Gesellschaft.
- Eurostat (1997), *Eurostat Yearbook '92: A Statistical Eye on Europe 1985–1995*.
- Garrod, G.D., K.G. Willis, H. Bjarnadottir and P. Cockbain (1996), 'The non-priced benefits of renovating historic buildings. a case study of Newcastle's Grainger Town', *Cities*, 13(6), 423–430.
- Garrod, G.D. and K.G. Willis (2002), 'Northumbria: castles, cathedrals and towns' in Navrud, S. and R.C. Ready (eds), *Valuing Cultural Heritage. Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Hanemann, W.M. and B. Kristrom (1995), 'Preference uncertainty, optimal designs and spikes', in P.O. Johansson, B. Kristrom and K.G. Maler (eds), *Current Issues in Environmental Economics*, New York: Manchester University Press, pp. 58–77.
- Harvard Graduate School of Design and Agence Pour La Dedensification et la Rehabilitation de la Medina de Fes (1997), *Project de Rehabilitation de la Ville Historique de Fes: Dynamique Fonciere et Rehabilitation de L'Habitat*, Rapport Provisoire, March.
- Harvard Graduate School of Design and Agence Pour La Dedensification et la Rehabilitation de la Medina de Fes (1997), *Rehabilitation of the Fez Medina: Environmental Assessment*, June.
- Hoehn, J.P. and A. Randall (1989), 'Too many proposals pass the benefit–cost test', *American Economic Review*, 79, 544–551.
- Kramer, R.A. and D.E. Mercer (1997), 'Valuing a global environmental good: US residents' willingness to pay to protect tropical rain forests', *Land Economics*, 73, 196–210.
- Krutilla, J. (1967), 'Conservation reconsidered', *American Economic Review*, 57, 787–796.
- Maddison, D. and S. Mourato (2002), 'Valuing different road options for Stonehenge', in Navrud, S. and R.C. Ready (eds), *Valuing Cultural Heritage. Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Moran, D. (1994), 'Contingent valuation and biodiversity: measuring the use of Kenyan protected areas', *Biodiversity and Conservation*, 3, 663–684.
- Mourato, S. and D. Pearce (1999), *Dealing with low willingness-to-pay for cultural heritage: statistical and policy implications*, Paper presented at the 9<sup>th</sup> annual conference of the European Association of Environmental and Resource Economists (EAERE), Oslo, June 1999.
- Mourato, S., A. Kontoleon, and A. Danchev (2002), 'Preserving cultural heritage in transition economies: a contingent valuation study of Bulgarian monasteries' in Navrud, S. and R.C. Ready (eds), *Valuing Cultural Heritage. Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Navrud, S. and E.D. Mungatana (1994), 'Environmental valuation in developing countries: the recreational value of wildlife viewing', *Ecological Economics*, 11, 135–151.
- Navrud, S., P.E. Pedersen and J. Strand (1995), 'Valuing our cultural heritage: a contingent valuation study of the Nidaros Cathedral', in Norwegian. Published in English in S. Navrud and J. Strand, (2002), 'Social costs and benefits of preserving and restoring the Nidaros Cathedral', in Navrud, S. and R.C. Ready (eds) *Valuing Cultural Heritage. Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Navrud, S. and R.C. Ready (eds.) (2002), *Valuing Cultural Heritage. Applying Environmental*

- Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Navrud, S and R. Ready (2006), 'International benefits transfer: methods and validity tests', *Ecological Economics*, **60**(2), 429–434.
- Navrud, S and R. Ready (eds.) (2007), *Environmental Value Transfer: Issues and Methods*, Dordrecht, The Netherlands: Springer.
- Noonan, D.S. (2003), 'Contingent valuation and cultural resources: a meta-analytic review of the literature', *Journal of Cultural Economics* **27**, 159–176.
- Pagiola, S. (1999), *Valuing the Benefits of Investments in Cultural Heritage: The Historic Core of Split*, Environment Department, The World Bank. Presented at the World Bank Economists' Forum, Alexandria, 3–4 May 1999.
- Pearce, D. W., S. Mourato, S. Navrud and R.C. Ready (2002), 'Review of existing studies, their policy use and future research needs', in S. Navrud and R.C. Ready (eds), *Valuing Cultural Heritage. Applying Environmental Valuation Techniques to Historical Buildings, Monuments and Artifacts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Sackman, H. (1975), *Delphi Critique: Expert Opinion, Forecasting and Group Process*, Lexington, MA: D.C. Heath.
- Tran Huu, T., U. Seenprachawong, and S. Navrud (2009), 'Comparing cultural heritage values in South East Asia: possibilities and difficulties in cross-country transfer of economic values', *Journal of Cultural Heritage* **10**(1), 9–21.
- Tran Huu, T. and S. Navrud (2008), 'Capturing the benefits of preserving cultural heritage', *Journal of Cultural Heritage*, **9**(3), 326–337.
- Ziglio, E. (1996), 'The Delphi Method and its contribution to decision-making', in M. Adler and E. Ziglio (eds), *Gazing into the Oracle: The Delphi Method and its Application to Social Policy and Public Health*, London: Jessica Kingsley.

## APPENDIX SURVEY INSTRUMENT DELPHI EXERCISE – ROUND 1

TO: Participants in Delphi Exercise  
FROM: Richard Carson and Stale Navrud  
DATE: June 19, 1997  
RE: Fes Morocco Contingent Valuation Delphi Exercise

### Introduction To Delphi Exercise

In this 'Delphi exercise' the objective is to use expert judgement (YOURS) to predict what the estimate from a contingent valuation (CV) study on a particular topic under a particular payment mechanism would be if it were conducted in: (a) your country and (b) throughout Europe. The good to be valued is a project to help preserve the Medina (the old city) in Fes Morocco which is on the UNESCO World Heritage list. A description of the basic good to be valued and the scenario plan are described below. The payment mechanism is a one time (non-voluntary) tax payment per household. We are interested in having you estimate four quantities: (1) mean household WTP in your country, (2) median household WTP in your country, (3) mean household WTP in Europe, and (4) median household WTP in Europe. (A precise definition of Europe including percentage weights for each country is provided below).

This Delphi exercise is part of a larger World Bank project on a proposed preservation plan for this cultural heritage site. Our hypothesis is that 'expert assessments' from environmental economists, based on their previous experience and their knowledge about the public's preferences, could be one way of obtaining information about the potential value to the public of a project. Such information may be useful in the initial stages of developing an analysis plan or when a decision has to be made quickly on the basis of limited information, and before an original study could be conducted. In this regard, the more actual CV studies which are conducted the greater the pool of knowledge of the expert community. The case picked here of a preservation project in Fes is at the outer range of goods which have been valued using contingent valuation in two primary ways. First, the number of CV studies valuing cultural resources as opposed to natural areas and outdoor recreation is small. Second, and perhaps more important is that the proposed CV survey would involve asking what households in one country would pay to help preserve a cultural resource in another country.

After we collect the information from the 30 participants in this Delphi

exercise, we would like to provide participants with summary statistics for the European mean and median WTP estimates and allow everyone an opportunity to revise all four of their estimates if desired.

We hope this will be an interesting experience for you all. As an economic incentive for participating each participant will receive US \$100 upon returning the completed questionnaire, as a compensation for the time you use on the survey. We estimate that it would take each participant about 30–40 minutes to complete the questionnaire and about 10 minutes to complete the second round. Thank you very much for participating in this Delphi exercise.

### **Brief Description And Visual Presentation Of Good To Be Valued**

The medina in Fes Morocco is one of the largest living medieval cities in the world. Because of its uniqueness it was one of the first cities to be named by UNESCO as a World Heritage City. Photo Card I is an aerial view of the Fes medina. Founded around 800 A.D., the 12 000 traditional houses in this part of Fes are now the home of 112 000 people. The medina is the setting for numerous historic mosques, palaces, monuments, gardens and fountains.

Of special importance is that it continues to be a living city with numerous markets and many workshops where traditional crafts are practiced. The largest of the two parts of the medina, the Fes-el-Bali, is still surrounded by the ancient wall. Visitors enter its picturesque maze of twisting alleys through the traditional gates.

PHOTO CARD II. Over the years many of medina's buildings have deteriorated because of overcrowding and inadequate city services. Photo A shows a recently repaired house. Unfortunately, government resources are too limited to keep up with the need for rehabilitation. As a result, many houses continue to deteriorate every year and, as shown in photo B some collapse before they can be restored.

The Medina has hundreds of streets. Photo C gives an example of a well maintained street. Because funds for maintenance and city services are inadequate, many streets, like the one in Photo D, are badly paved and dilapidated.

PHOTO CARD III Despite the efforts of local authorities, some of its beautiful public buildings, like the building in photo E, have become run down and now look like the building in photo F. Many public spaces urgently need refurbishing to keep them from further deterioration. Only a few of the numerous fountains in Medina now flow with water like the fountain in photo G. Most are in disrepair; and money is available to repair only a few like the fountain being repaired in photo H.

### Basic Scenario Elements

There is concern that unless a major effort is undertaken, the old Fes medina will continue to decline and may soon lose its historical character, perhaps forever.

The Moroccan Government, in collaboration with experts from international agencies, has developed a plan to rehabilitate the Fes medina. If implemented, the plan will do the following:

First it will improve the medina's appearance. Buildings, streets, sewers, public spaces, and monuments will be repaired and cleaned up.

Second, it will preserve the medina's traditional character and cultural heritage for future generations.

Third, it will ensure that the medina will continue to be a productive and vibrant living city.

The rehabilitation plan will be expensive and cannot be implemented by the Moroccan government without additional sources of support.

### Payment Mechanism

One time lump sum payment per household in the form of an involuntary payment (tax). The exact form of the payment vehicle would undoubtedly vary from country to country in order to find a payment mechanism that was plausible. The key factors are: (1) per household rather than individual, (2) a one time rather than a recurring payment, and (3) payment is coercive (e.g. tax) rather than a voluntary contribution.

### Four WTP Estimates Needed

All of your estimates can be provided in either ECU, US dollars, or your country's currency. Assume that the survey design and the statistical analysis of the data would be done according to what you perceive as the current state of the art.

V1. Mean per household WTP (one time payment) in your country:

\_\_\_\_\_ ECU  
\_\_\_\_\_ \$US  
\_\_\_\_\_ Your country's currency (specify \_\_\_\_\_)

V2. Median per household WTP (one time payment) in your country:

\_\_\_\_\_ ECU  
\_\_\_\_\_ \$US  
\_\_\_\_\_ Your country's currency (specify \_\_\_\_\_)

V3. Mean per household WTP (one time payment) in Europe:<sup>1</sup>

\_\_\_\_\_ ECU

\_\_\_\_\_ \$US

\_\_\_\_\_ Your country's currency (specify \_\_\_\_\_)

V4. Median per household WTP (one time payment) in Europe:

\_\_\_\_\_ ECU

\_\_\_\_\_ \$US

\_\_\_\_\_ Your country's currency (specify \_\_\_\_\_)

### **Your Judgement About the Difficulty of Implementing this CV Survey**

J1. How close do you think the average estimate for this Delphi exercise would be to the number which would be obtained from undertaking an actual CV survey? [Answer on 10 point scale]

Not Very Close 1 2 3 4 5 6 7 8 9 10 Very Close

J2. How difficult do you think that it would be to successfully implement a CV survey on this topic (Fes Medina)?

Not At All Difficult 1 2 3 4 5 6 7 8 9 10 Very Difficult

J3. How difficult do you think that it would be to successfully implement a CV survey in your own country to value a cultural resource which was in your own country?

Not At All Difficult 1 2 3 4 5 6 7 8 9 10 Very Difficult

J3. How difficult do you think that it would be to successfully implement a CV study in your own country to value a recreational activity in your own country?

Not At All Difficult 1 2 3 4 5 6 7 8 9 10 Very Difficult

### **Background Questions**

B1. How familiar are you with the literature on Contingent Valuation? [Circle a number.]

Not At All Familiar 1 2 3 4 5 6 7 8 9 10 Very Familiar

B2. How many CV surveys, if any, have you worked on (alone or in cooperation with others)?

\_\_\_\_\_ (write zero if you have not done any CV surveys)

B3. How many empirical studies using valuation methods other than

contingent valuation (e.g. hedonic pricing, travel cost analysis) have you worked on (alone or in cooperation with others)?

\_\_\_\_\_ studies

B4. Approximately, what fraction of your research would you say was on contingent valuation, what fraction on other valuation methods and what fraction on other topics? (sum to 100%)

\_\_\_\_\_ % Contingent valuation

\_\_\_\_\_ % Other valuation methods

\_\_\_\_\_ % Topics other than valuation

B5. Which of the following environmental economics journals do you read or look through regularly? (Circle all that are relevant)

1. *American Journal of Agricultural Economics*
2. *Ecological Economics*
3. *Environment and Development Economics*
4. *Environmental and Resource Economics*
5. *Journal of Environmental Economics and Management (JEEM)*
6. *Land Economics*

B6. How many papers on contingent valuation (both theoretical and empirical studies) have you reviewed for national and international journals the last two years?

\_\_\_\_\_ papers

B7. What is your highest academic degree? [Circle one.]

1. Ph.D or equivalent
2. M.Sc. or equivalent
3. B.Sc. or equivalent

### **Last Thoughts**

L1. What empirical CV studies do you think would be the most useful to look at to determine a reasonable initial WTP estimates for this Fes Morocco project for Europe?

L2. What empirical CV studies other than those named in L1 above do you think would be the most useful in helping to design a Fes Morocco project CV survey to be administered in Europe?

L3. What do you think the major problems are in designing a Fes Morocco CV survey to be administered in Europe?



## DELPHI EXERCISE-ROUND 2

### RETURN FAX FORM

FROM:

TO: Richard Carson/Stale Navrud  
Department of Economics, 0508  
University of California, San Diego  
La Jolla, CA 92093 USA

FAX 010-1-619-534-7040  
e-mail: rcarson@ucsd.edu

DATE: 24 July 1997

RE: Fes Morocco Delphi Exercise

### YOUR ORIGINAL FES DELPHI EXERCISE RESPONSES

Mean-\_\_\_\_;Median-\_\_\_\_;MeanEurope-\_\_\_\_;Median-Europe-\_\_\_\_\_.

## FES MOROCCO DELPHI EXERCISE ROUND 2

In the next three pages we have summarized the responses of the 30 European environmental economists taking part in this exercise with respect to their best estimates of the mean and median contingent valuation (CV) results they believe would be likely if a CV survey were to be undertaken throughout Europe valuing the World Bank's project to preserve and improve the old part (Medina) of Fes Morocco which is a UNESCO World Heritage site.

After reading this information, we would like to ask you to reconsider your original responses both respect to your country and with respect to Europe. It may be the case that you believe that your original estimates are still the best estimates or it may be the case that you want to revise one or more of your original estimates up or down.

### Round 2 Estimates

1. Mean WTP per household (one time payment) in your country:  
\_\_\_\_\_ ECU \_\_\_\_\_ \$US \_\_\_\_\_ Your currency specify \_\_\_\_\_
2. Median WTP per household (one time payment) in your country:  
\_\_\_\_\_ ECU \_\_\_\_\_ \$US \_\_\_\_\_ Your currency specify \_\_\_\_\_

3. Mean WTP per household (one time payment) in Europe:  
\_\_\_\_\_ ECU \_\_\_\_\_ \$US \_\_\_\_\_ Your currency specify \_\_\_\_\_
4. Median WTP per household (one time payment) in Europe:  
\_\_\_\_\_ ECU \_\_\_\_\_ \$US \_\_\_\_\_ Your currency specify \_\_\_\_\_

## NOTE

1. For the purpose of this Delphi exercise, Europe is defined as the members countries of the European community plus Norway and Switzerland. The weights on each country are proportionate to the percentage of the total households under this definition of Europe in each country. The weights are Austria (.02), Belgium (.03), Denmark (.02), Finland (.01), France (.15), Germany (.24), Greece (.02), Ireland (.01), Italy (.14), Luxembourg (.01 <), Norway (.01), Portugal (.02), Spain (.08), Sweden (.03), Switzerland (.02), United Kingdom (.16).

