

Valuing and Preserving Site-Specific Cultural Resources in Italy: Some of the Issues

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Abstract: The paper outlines the challenges and opportunities associated with valuing site-specific cultural resources. The discussion is framed around the issue of valuing cultural resources in Italy, a country with a large and deteriorating stock of such resources, resources that have great use and nonuse value for locals, Italians, and foreigners. All of the standard issues in nonmarket valuation are relevant, including, but not limited to, estimating use and nonuse values, incentive compatibility, describing the scenario, and the informational content of stated versus revealed preference data. Nonmarket valuation can help in determining what should, and should not, be preserved, and, if preserved, how to raise the required funds.

1. Introduction

For over twenty years, one of my main areas of research has been the valuation of nonmarket commodities.¹ I don't propose to be an expert on Italy and its cultural resources. Rather, I bring to the table the relevant questions from the perspective of someone who does nonmarket valuation. Nonmarket commodities are commodities that are not directly bought and sold in the market place. Nonmarket commodities include public goods, environmental amenities, recreational sites, and cultural and historic resources (hereafter cultural resources).

In the last ten years I have become interested in valuing cultural sites and recently completed a study valuing the preservation of historic buildings and monuments in Washington, D.C. (Morey et al. 1997 and 2001c, and Morey and Rossmann 1999). The study of the demand for and benefits from cultural sites is a growing area of research. The *Journal of Cultural Economics* has published a number of cultural valuation studies (e.g., Hansen, 1997, and Santagata and Signorello, 2000). See also Mossetto (1993), Grosclaude and Soguel (1994) and Narvud and Ready (2001); the latter is a collection of empirical studies.

When considering cultural resources, Italy comes immediately to mind.

An embarrassment of riches: Overloaded with artistic and historic treasures, Italy is fighting a losing battle to conserve and protect its heritage (The Economist, 1994)

Deterioration is common and often part of the charm. One must ask whether the stock of these resources is too large, and from whose perspective; these resources are widely valued outside of Italy. Think of what Catholics worldwide would, and do, pay to preserve the Vatican, and that for hundreds of years millions of tourists have traveled to Italy to view and experience the sites.

The preservation decision is not discrete, but a question of the optimal rate of degradation or restoration. Typically, they are gradually degraded by neglect, weather, pollution, encroaching development, congestion and traffic. Restoration, when it occurs, is partial, lengthy, and temporary. Many sites have layers of pasts, in which case, there is a question of which past to save (Hine 1999).

Given that many areas in Italy contain hundreds if not thousands of historic resources, the issue of substitutability and complementarity is crucial. Two churches in Rome might be substitutes from the perspective of a local Catholic, but complements from the perspective of a tourist. Does restoring a site increase or decrease the value

of similar sites?

A primary reason to value cultural resources is to determine whether preservation is appropriate. Efficiency requires that a cultural resource should be preserved if the present value of preservation is greater than the cost.² Given all of the cultural resources in Italy, they cannot all be saved and probably should not all be saved; the opportunity cost is just too high.

The other reason to value cultural resources is that the valuation method and estimates can be used to help determine how restoration and preservation, when appropriate, should be funded. Should restoration and preservation be funded with user fees, property taxes, general tax revenues, voluntary contributions, or some combination of these sources?

My comments will cover six topics:

2. What is value?
3. Value, positive or negative? And from who's perspective?
4. Use and nonuse values for site-specific cultural resources
5. Methods to estimate use values
6. Methods to estimate total value
7. Extracting *wtp* (willingness to pay) from residents, tourists and others: methods and motivation

Extensive references are included.

2. What is Value?

Conventional measures of economic value are the compensating and equivalent variation, *cv* and *ev*. Compensating variation is the amount that has to be subtracted from the individual's income in the proposed state to make him indifferent between the proposed state, with the compensation, and the initial state. Equivalent variation is the amount that must be added to income in the initial state to make the individual indifferent between the initial state, with the compensation, and the proposed state. For improvements both are positive; for deteriorations both are negative. If a change is an improvement, the individual's *cv* is his or her willingness to pay, *wtp*, for the change, and his *ev* is what he would have to be paid to voluntarily forego the change, willingness to accept, *wta*. If the change is

deterioration, cv is the amount the individual would have to be compensated to accept the deterioration and the ev is his wtp to stop the deterioration. The cv and ev for a policy can be positive for some and negative for others, and this is what one might expect for preserving cultural resources. One's cv for preserving the canals of Venice is wtp if one values their preservation and wta for those who would prefer to see the canals filled in.

One's wtp is bounded by one's income. Most valuation survey questions ask questions about wtp rather than wta . wta questions are difficult to ask and, if asked, the answers are difficult to assess because wta is not bounded by income. However, one must keep in mind that estimating value is first and foremost an exercise in estimating the preferences of individuals. Once preferences are estimated, they can be expressed in terms of the cv or ev . cv is the appropriate measure of value if one wants to determine whether preservation is efficiency increasing (a potential pareto improvement).

Value to a group is just the sum of the values to the individuals in the group. The group can be the residents of a town, a region, a country, or the world. It can include residents of the future. Whether the total value is positive or negative might depend on how the group is defined.

3. Value, positive or negative? and from who's perspective

Cultural sites can be valued by local residents, but have no additional regional or national value. For example, a small local cemetery might have significant value only for the local residents. Alternatively, cultural sites can be valued by residents of the region, nation, or world but not by the local residents. That is, a site that is considered an amenity from the perspective of those who do not reside near it might be considered a disamenity from the perspective of the local residents. For example, some locals consider the canals of Venice inconvenient and dirty. Locals not in the business of tourism often consider the presence of tourists, attracted by the cultural resources, to be welfare decreasing.

Many examples exist of cultures destroying the monuments of past or different cultures because doing so is, for them, welfare increasing, while others value these monuments dearly. Just recently the Taliban in Afghanistan ordered the destruction of statues in the country, including two massive and ancient stone Buddha (New York Times 2001). In the words of the decree, "All statues in the country should be destroyed because these statues have been

used as idols and deities by the nonbelievers.” Monuments can also be lightning rods for criticism and controversy. In 1991, the city of San Francisco decided to move its “Pioneer Monument” and attach a new plaque. The statue includes a friar standing over an American Indian and pointing to heaven, as a Spanish vaquero looks on, raising a hand in triumph. The ensuing battle included preservationists, American Indians, the Roman Catholic Church and the Spanish Government (Ybarra 1996).

Preservation can also stand in the way of “progress”. “Destroying the old makes room for the new.” Some argue that preservation has turned Venice into a theme park rather than a living city - its islands population has declined from about 175,000 in 1951 to 68,000 in 1998; it is expected to fall to 40,000 by 2005 (Piazzano, 2000). The average age is over 50 and rising, the highest in Italy.

Valuation studies of cultural resources should start by asking who will be made better off and worse off by preservation. If negative value is detected in focus groups and pretests, the valuation technique must incorporate this possibility.

4. Use and Nonuse Values for Site-specific Cultural Resources

Site-specific resources are resources that reside at specific locations and that are not easily moved. Examples are landscape (mountains, forests), views, rivers, coastlines, buildings, fountains and statues, ruins, streets, roads, and even towns and cities³. The hill town of Urbino in the Marche is a site-specific cultural resource. Institutions can be cultural resources. Two examples are the University of Bologna and the Opera in Milan. Each is a living resource in that the resource encompasses not just the buildings but what goes on in those buildings.

To identify and estimate value it is important to distinguish between use and nonuse values. Use value requires use of the resource. For example, the use benefits from the Vatican museum can only be captured if one visits the museum. Good views are an example of use benefits in that they require being in a particular location, which requires either a trip to that location or a residence at that location.

Nonuse values for a site-specific resource are values one can obtain without being present at, or near, the site. Examples of nonuse values are the pleasure one gets from knowing gorillas exist in Africa, and the pleasure one gets from knowing the Colosseum still stands. Nonuse values can include values for use by others now and in the

future (bequest values), and other intrinsic values that accrue even if the individual does not visit the resource. For example, the pleasure one gets from knowing that fish have quality habitat in which to live does not require that one visits the stream.

Cultural resources typically generate both use and nonuse values. One can both get pleasure from visiting cultural sites and from knowing such sites exist. Use values are obviously significant for popular tourist sites and/or sites near which people like to live. Tourists have a *wtp* for cultural resources that is often greater than what they currently pay in terms of time and money.

Use affects the characteristics of a site, so current use can reduce future use and nonuse benefits. Many historic building, parks and wilderness areas are being degraded by their visitors. An obvious example would be tourists carting home pieces of the Colosseum. Subtler examples include the effect of increased humidity in cathedrals caused by the thousands of daily visitors and the effect this has on the religious artifacts. This raises the issue of to what extent should access be restricted, and, if so, what mechanism should be used. Restricting access can be a significant component of a preservation program.

The value of the cultural resources in a town or region is not the sum of the values of all of its separate cultural components. Venice has value greater than the sum of the values of its individual buildings, piazzas and canals.

If one is considering a number of restoration projects, the individual benefits of each can depend on the order in which the projects are undertaken (Carson et al., 1998). Restoring one church might reduce, or increase, the benefits of restoring a second church. It depends on whether the churches are substitutes or complements from a cultural perspective. As mentioned in the introduction, whether different cultural resources are substitutes or complements often depends on the individual's perspective.

When individuals are asked to value a particular restoration project it should be presented in context of the overall restoration and preservation agenda in the area. This is a difficult task for the researcher. One would expect that the value for preserving a site could vary immensely depending on what else will or won't be preserved. The problem for valuation in terms of a survey is that the researcher cannot realistically ask the respondent to value the project under numerous states of the world, but, if the existing state is described incorrectly, the values will be

wrong.

5. Methods to Estimate Use Values

5.1 TRAVEL-COST MODELS

Travel-cost estimates use values by observing behavior and inferring value from that behavior. If a trip to Florence costs \$2000 and I take a trip, one can infer that, at that moment, I expected at least \$2000 worth of benefits from the trip. If a trip to London costs \$1000, and I choose Florence over London, I value the characteristics of Florence at least \$1000 more than I value the characteristics of London.

Specifically, the travel-cost method estimates a system of demand functions for trips to cultural sites as a function of the travel costs to the sites, and the characteristics of the sites. The intent of estimating demand is to estimate preferences, so from the system of estimated demand one can derive the use component of the *CV* for the existence of a cultural site and/or a change in the characteristics of a site⁴.

Tourists, both Italians and foreigners, take many trips to cultural sites in Italy, so the travel-cost method should be seriously investigated as a method for estimating use values for cultural sites. Important travel-cost issues in this context are defining sites, defining and measuring the characteristics of the sites, and defining trips.

There are macro sites and micro sites. If Venice is viewed as a macro destination, then the Piazza San Marco is a micro site. For tourists from the U.S., Italy is a macro site, Tuscany is a micro site in Italy, and Florence and Siena are important micro sites in Tuscany. Galleria degli Uffizi and the Galleria dell' Accademia are micro sites in Florence. For residents of Bologna, the hill town of Urbino can be viewed as a possible macro destination and the Palazzo Ducale as a large micro site in Urbino.

Discrete choice random utility models (nested logit, probit, etc.) are well suited to model how individuals simultaneously choose both a macro site and one or more micro sites in that macro site. Nested-logit models were developed by Daniel McFadden (1978, 1981) as a method to explain choice of urban transportation mode. They have been extensively applied to estimate the demand for trips to recreational sites.⁵ The decision tree for visits to cultural sites can be viewed as a nest. At the top level of the nest is the participation decision; at the next level are the regions in the choice set; and at the next level are the micro sites in each region. For example, the foreigner decides whether

to visit Italy, and if so, where and for how long. Looking ahead, these models are also used to model the answers to stated-choice questions.

Modeling trips to cultural sites poses many exciting micro and econometric problems. The data is typically individual based, so corner and boundary solutions are prevalent; that is, most individuals do not visit all of the sites and many individuals visit none of the sites. There are often sample-selection problems; for example often only participants are sampled. It is also important to be utility-theoretic; that is, estimated demand functions must be consistent with an underlying preference ordering.

It would be difficult to use a travel-cost model to estimate the use benefits for local residents (individuals who reside in or close to the site). Much of their daily activity is near the site. Locals get use benefits from walking the streets and viewing the architecture, worshiping in the local church and the occasional trip into the local museum, the latter usually when one has visitors from out of town. In addition, locals get pleasure from knowing they live near sites that are culturally significant. To realize these values one must be in proximity of the site.

This raises the important question of what is a trip. One spends time at a site either by visiting the site or residing at the site, so travel and residential location are substitutes that are jointly determined. In practice, it is very difficult to define trips by locals: few excursions around town will be for the sole purpose of visiting a site (multipurpose trips). There is also the question of what is a "visit". Is going a block out of one's way to drive by a cathedral a visit? For these reasons, travel-cost models do not hold much promise for measuring the use value of cultural sites by locals.

But, travel-cost models can be used to estimate use values for tourists, estimating a different model for international tourists versus residents of Italy. Preferences are likely vary as a function of where one lives and one's cultural and religious background. Absolute travel costs can differ between international tourists and Italians by orders of magnitude. So can the relative prices of different sites. Modeling the behavior of "nonresidents" is a common problem in travel-cost models. Often studies exclude individuals who reside more than a certain distance from the sites. Nonresidents are difficult to model because they are likely to have different preferences; their trips are often for multiple purposes and to multiple sites, and plane fares are often unrelated to distance flown. Ignoring nonresidents is reasonable if nonresidents are only a small proportion of the visitors, but that is definitely not the

case for places like Rome, Florence and Venice. Much of the use value is likely foreign value.

An important issue in any model designed to value cultural sites (including travel cost models) is the question of how to characterize the “quality” (characteristics) of the sites. Since the intent is to value cultural resources, estimating site-specific constants for macro sites will not suffice. One needs to describe the sites in terms of their levels of some set of common characteristics, so one can determine the influence of the attribute(s) of interest.

For sites where all visitors visit for the same reason, e.g., fishing sites or ski areas, one need only concentrate on a small number of common characteristics such as water type (river, lake, etc), size, catch rates for different species, etc. In contrast, tourists visit Rome for many different reasons (historic sites, religious sites, food, shopping, etc).

In addition, cultural resources are often unique. St Peter’s and the cathedral in Milan are not perfect substitutes, neither are the different fountains in Rome. One cannot completely explain the cultural attractiveness of Rome versus Florence simply in terms of the numbers of museums, churches and fountains.

Nonlinear effects are potentially important. For example, if one included the number of churches in a town as one of the town’s characteristics, given the potentially complementarities between the churches, one would want to investigate the inclusion of nonlinear and interaction terms.

5.2 HEDONIC PROPERTY VALUE AND HEDONIC WAGE MODELS AS A METHOD TO ESTIMATE THE USE BENEFITS FROM CULTURAL SITES

Amenities can affect both property values and wage rates, but cultural amenities affect property values more than wage rates; cultural amenities tend to be site specific.⁶ There are hundreds of hedonic property value studies that show that property values are significantly affected by their distance from site-specific amenities and disamenities⁷.

Hedonic property value studies are based on the notion that in equilibrium amenities often get capitalized into property values. As a secondary effect, property values influence both long and short term rental rates. In Boulder, the city where I reside, property values are high and wage rates are low. The hedonic perspective would argue that this is because Boulder is an attractive place to live.

In Italy, it is important to make a distinction between the market prices for properties and rental rates (including hotel prices). Land markets in Italy are quite restrictive relative to places like the United States. Selling prices are likely to be spotty, will not necessarily reflect competitive prices, and land use in close proximity to cultural sites is often highly restricted. However, there is a significant market for tourist accommodations. There are significant rent gradients for hotel rooms in cities like Florence and Venice. Rental rates for weekly cottages, hotels and villas vary across regions in Italy, and within regions rental rates vary as a function of the distance to major tourist attractions. Rental rate data are readily available through tourist agencies, rental agencies, and guide books.

Such data can be used in hedonic property value studies to help estimate the use values of tourists for, for example, trips to cities, towns and areas. A caution is in order; visitors typically make their destination decisions based on both travel costs and rental rates, so one cannot ignore travel costs just because rental gradients are the focus of the study.

Consider the relationship between travel-cost methods and hedonic methods. In some cases, travel costs and property values are two sides of the same coin: residing, or renting, close to a site is valuable because it reduces the cost of visiting the site. Travel cost models and hedonic property value studies can be substitutes for one another, and/or complements for one another.

In many cases, one should be able to disentangle travel costs and accommodation costs. If I travel to Italy and rent a house in Umbria rather than Tuscany, it must be because of the relative costs and amenities in the two regions rather than the cost of the plane ticket.

5.3 REAL AND EXPERIMENTAL MARKETS

Another technique for estimating use values is to create real or experimental markets (Carson, 1991). One can experiment with entrance fees as a method of determining *wtp* above and beyond the current costs of the trip. The researcher could identify similar sites in different locals and charge a different fee at each site. There would be complicating factors but these could be taken into account. To estimate value some of the fees would have to be high enough to significantly reduce use. For example, one might imagine a study in Italy that varies entrance fees by museums.

Travel-cost models, hedonic models, and experimental markets are revealed preference techniques. That is, they are techniques that infer value from observed behavior. They are only capable of estimating use values; observed behavior reveals nothing about nonuse values. To the extent that many cultural resources in Italy have positive nonuse value, these techniques will underestimate values.⁸

The individual's behavior reveals his or her values. Alternatively, an individual's stated preferences are a description of his or her preferences. If I survey you as to whether you would prefer to visit London or Prague, I have collected stated-preference data; in this example, intentions data (data on what one intend). Many question whether stated-preference data contains the same amount of information about preferences as revealed-preference data. If one feels that it contains some information, but less information than revealed preference data, efficiency dictates that it be used accounting for its lesser information content. Some, like me, would argue that it can contain more information because it controls for confounding factors.

5.4 CHOICE EXPERIMENTS AS A METHOD TO ESTIMATE THE USE VALUES ASSOCIATED WITH CULTURAL SITES

Choice experiments can be used to estimate use values or total value. Put simply, choice experiments present the respondent with a number of alternatives, each described in terms of the levels of their common set of characteristics, and ask the respondent to identify his or their preferred alternative. Stated-choice techniques are used in marketing, transportation, and economic research to value products, environmental resources, and changes in transportation modes as a function of their characteristics.⁹

Consider first a choice experiment designed to estimate the use value an individual associates with a site.¹⁰ Denote these use-value choice experiments. One presents each sampled individual with a set or sets of sites and asks the individual to either choose the best site in each set or rank the sites. Not taking a trip might or might not be included in the choice set. The data is travel-cost data but reports what the individual states he would likely do if presented with that choice set.¹¹ The sites are defined in terms of cost and a finite number of characteristics. These costs and characteristics are systematically varied across the sites in the individual's choice set. Data is also collected on the socioeconomic characteristics of the individuals. The data is incorporated into a model of consumer

preferences to determine how an individual would value a site as a function of its characteristics.

Use-value choice experiments are particularly useful when one must value configurations of characteristics that do not currently exist. For example, choice experiments could be used to value Florence with and without the potential for a visit to its main cathedral. Market researchers often use use-based choice experiments to value new products. Choice experiments were developed to value proposed models of cars as a function of their features, for cases where some of these features are not currently available.

Choice experiments identify the important characteristic of sites and provide data to determine the rates at which individuals are willing to tradeoff these characteristics. The choices can mimic the types of choices individuals would face with and without preservation.

One could use choice experiments on tourists and potential tourists to determine how they would vary where they went and what they saw as a function of cost and site characteristics. For example, the researcher could ask a visitor to Rome to choose between a trip to Rome with and without a trip to the Vatican, where the trip including the Vatican is more expensive. One could ask the same of a potential visitor.

Choice experiment data are ideally suited to ferret out the influence of the different micro sites. Data from use-value choice experiments and actual travel data should be considered complements rather than substitutes. Some of the frontier research in the area of valuation is in developing utility-theoretic models that simultaneously use both stated choice data combined with revealed preference data (travel cost, market data, observed behavior, etc.) to estimate consumer preferences for nonmarket commodities. Combining revealed and stated preference data can be useful in the valuation of cultural resources. Recent examples of estimated models that combine actual travel patterns with the data from use-value choice experiments include Adamowicz et al. (1994), Adamowicz (1997) and Breffle et al. (2001a)

6. Methods to estimate total value

The limitation of the valuation methods described so far is that nonuse values are not estimated. Consider now methods to estimate total value, including choice experiments, contingent valuation and models that incorporate both stated and revealed preference data.

When estimating total value, some researchers attempt to disaggregate value into its use and nonuse components. The importance of doing this is overrated. Value is value, the distinction between use and nonuse values is important if one denies the existence of the latter, or one wants to determine how much of total value can be extracted with user fees.

6.1 CHOICE EXPERIMENTS TO VALUE CULTURAL SITES

The choice experiments described above were “use” based, “would you prefer to do A or B”. Consider now choices over states of the world.¹² Would you rather live in a world with or without or without Venice? Imagine the following choice question, would you pay \$x to keep Venice from sinking into the Adriatic? Or, on a micro site basis, would you pay \$x to stop the Trevi fountain from cracking in two - it is on ground made unstable by recent construction - or so the survey would suggest. Can such questions be realistically asked and answered?

One could, for example, present individuals with a number of pair-wise choices for Rome, where each alternative is described in terms of a vector of available attractions, along with the cost of the alternative. This type of question could be asked of anyone, local and otherwise.

The scenario to be valued needs to be clearly specified. For example, ten years ago many individuals would have been able, after having the likely outcome of restoration described, to answer whether he or she would pay 100,000 lire to achieve the restoration of Michelangelo's Last Judgment. However, scenarios such as "restoring Rome" are vague, so open to so much interpretation that the responses to a question such as "Would you pay one million lire to restore Rome is basically meaningless. Describing the scenario to be valued is often the most difficult task.

A critical issue is how to best describe different state of preservation. I have had good experience with maps and photographs. In a study valuing reductions in the rate of monument deteriorations, we used photos and maps to identify the monuments and to show what they would look like in the future under different preservation scenarios (Morey et al. 2001c). Photos of monuments were digitally altered to show different degrees of future deterioration. This type of information would be very difficult to convey in words alone. We used a combination of verbal, written, maps and pictures to describe characteristics and their different levels. The material was presented in group settings.

A web-based survey is also a feasible way to convey complex information in different formats (words, dialog, photos and movies). Detailed color photos and maps are expensive in mail surveys.

The respondent needs to be convinced that the alternative(s) to be valued are feasible. If a scenario is infeasible, individuals will often state a zero *wtp*, not because they do not value the scenario, but rather because they feel the scenario cannot be achieved at any price. For example, cleaning buildings and fountains is feasible; rerouting all the traffic in downtown Rome less so.

The cost associated with each alternative would have to be realistic and not a function of the respondent's behavior. The payment vehicle (form and type of payment) is important. Payment, for example, could be in terms of a one-time tax or payment to a private organization. A price increase for a product or class of products would not work because an individual has the option of not purchasing the product. Note that one's *cv* for preservation or restoration is a function of how it is paid for.

The responses to choice questions will vary as a function of income, the distance from their residence to the site, religion, etc. Because of this, one would want the costs in the choice sets to be different for locals, residents of Italy, and foreigners.

One would obviously get a biased estimate of the value to foreigners if one just sampled visitors. It is possible, but expensive, to survey a random sample of E.C. or U.S. residents. Many of those surveyed would have zero values, so one would have to sample large numbers to get a reliable estimate of mean *cv*.

Choice experiments typically present the respondent with more than one choice: five to ten pair-wise choices is typical. If one presents the individual with only one pair-wise choice and one of the alternatives is the status quo, the experiment is a referendum contingent valuation question. For example, would you pay \$1 to guarantee that the leaning tower of Pisa does not topple is a contingent valuation method, *cvm*, question. The specified price in the referendum question is varied across the individuals in the sample. Referendum *cvm* is a special case of choice questions over states of the world, where one of the states is the status quo.

Whether, and how often, one should include the status quo as one of the alternatives in choice experiments is an ongoing topic of contention.¹³ In practice and theory, neither of the alternatives in a pair needs be the status quo. For better or worse, choice experiments are more flexible than the contingent valuation method. Because

individuals are presented with multiple choices but only outcome can be realized, the exercise is more hypothetical than a referendum *cvm* question. This is both good and bad. *Ceteris paribus*, one would like the question to be incentive-compatible (the individual has the incentive to answer truthfully) One can accomplish this by making the respondent believe that his response will affect the probability that the project will undertaken. This is easier to accomplish with referendum *cvm*; this is particularly true if individuals have experience with actual referendum votes. While referendums are quite common in some states in the U.S., they are not common in Italy. In contrast, the repeated nature of choice questions forces the respondent to concentrate on the tradeoffs rather than answering strategically or rejecting the scenario.

One typically models the answers to the choice question in a discrete-choice random utility framework. One specifies utility for a state of the world in terms of the level of expenditures on some numeraire (income minus the additional cost associated with the state) and its characteristics, where all but the characteristics of interest are held constant across the two states.

6.2 OTHER TYPES OF VALUATION QUESTIONS

More generally, contingent valuation asks an individual to state the value he or she places on a nonmarket commodity. For example, the question, how much would you be willing to pay to finish Bologna's Duomo of San Petronio is a contingent valuation question. There are few *cvm* studies to value the preservation of urban land; one is Breffle et al. (1998).¹⁴

In contrast to the referendum *cvm* format, one could ask the individual to state his or her exact *wtp* for achievement of the goal. This is called the open-ended format. Stating your maximum *wtp* is considered more difficult than determining whether your *wtp* is greater than the amount specified in a referendum question. Another format is iterative bidding. Iterative bidding asks the individual whether he or she would pay each of an ascending or descending sequence of specific amounts.

Estimation of the representative individual's *cv* for some preservation project can be as simple as averaging the *wtp* responses from an open-ended question, or regressing the *wtp* responses from an open-ended question on the socioeconomic characteristics of the respondents to obtain an individual's estimated *wtp* as a function of his or her

characteristics. Estimation can also be quite complicated. For example, one might use the responses to referendum questions to estimate wtp in a utility-theoretic ordered-probit model.

Many issues complicate *cvm* studies. cv might be negative for some respondents. For example, some Romans apparently are balking at the new palette of post-modern pastels that have cropped up on recently restored buildings (Kimmelman. 1994). Surveys often do not allow individuals to express negative values. The interval nature of the data obtained with referendum and iterative bidding questions also poses problems. One obtains an upper and lower bound on wtp , not an estimate of wtp . Modeling the sources of error and randomness (variation in preferences and/or measurement error) leads to many interesting econometric questions. For example, some sampled individuals state $wtps$ that are very large. Is this an expression of extreme preferences or measurement error?

There is a significant literature on whether referendum *cvm* is preferable to the other *cvm* formats. It was recommended as the appropriate format by the NOAA panel. However, it can generate higher values than other formats. The suggested explanation of this disparity is that if one is given only one change to express a desire for a project, one might vote yes even if the stated cost exceeds its implicit value.

In summary, stated-choice and *cvm* questions can be designed to value cultural sites, but only with great care. The design of the instrument should begin with focus groups, and the questions need multiple rounds of pretesting. There are also some specific concerns associated with asking Italian stated-choice questions. Italians have little experience with ballot referendums and most tax revenues go to the central government, so there is little experience with "earmarked" tax revenues.

6.3 COMBINING DATA SOURCES

A relatively new area of research in the area of nonmarket valuation is the integration of stated and revealed preference data and the integration of different types of state-preference data.¹⁵

Consider now the combining of different types of stated-preference data. Surveys that include choice experiments or *cvm* questions also typically include attitudinal questions, importance questions, and other indicators of preference. Often these additional data are not used in estimation but held back to demonstrate that the estimated values are consistent with stated attitudes. Alternatively, it can be used to increase the efficiency of the value

estimates, but this requires much richer models and econometrics. A theory is needed of how an individual's preferences translate into the answers of different types of questions (McFadden, 1986).

One can also incorporate observed choices (travel cost data) into such models. Since this data reflects only the use component of value, it can be used to place a comfortable bound on total damages.

7. Extracting *wtp* from residents, tourists and others: methods and motivation

One reason for extracting *wtp* to fund preservation is general tax revenues are scarce. Another reason is that many people feel that the fees for restoration should be a function of the use benefits one receives. It also might be desirable to extract *wtp* from foreigners.

7.1 USER FEES AND/OR TAXES RELATED TO USE

Consider first user fees and/or taxes related to use. For efficiency and/or equity reasons, user fees could vary as a function of residency (local, regional, national, foreign). The consumer's surplus associated with a trip to a site is what one would pay above and beyond what one already pays, so, *ceteris paribus*, consumer's surplus is a decreasing function of trip cost. One implication is that if a resident and a foreign tourist have identical preferences and income, the resident will be willing to pay a higher entrance fee. However, foreign tourists will typically have significantly larger *wtp* per visit. This could be because they have higher incomes and make fewer visits. Willingness to pay per visit is typically found to be inversely related to number of visits¹⁶. Travel-cost models could be used to determine how visitors, by type, would respond to fee structures.

Should there be user fees for specific sites such as churches and museums? What kinds of fee structures currently exist? What percentages of costs are covered by such fees? User fees are feasible for major attractions and many, but not all, micro sites. One cannot collect fees for entrance to streets or piazzas, but these might be as attractive to tourists as the local museum. The Trevi fountain is a must see but it would be difficult to collect a compulsory fee.

Consider entrance fees for towns and/or regions. Does the town or region have a way to control access; that is, is there a feasible gate? Venice has over ten million visitors per year (Zwingle, 1995) and a small number of

entrance points, so an entrance fee is technically feasible. Many tourists spend hundreds if not thousands of dollars to visit Venice. A \$25 or \$50 fee would probably be less than many tourists' *wtp*. The revenues generated could be used for restoration. I suspect that such a fee could be acceptable to tourists, but its structure and monitoring would have to be carefully crafted. It might have to be voluntary. Few want to live in a theme park. Merchants would also have to be convinced, possibly through subsidies that the fee was in their long-term interests.

A tax on hotel rooms and/or restaurant meals is not a perfect substitute for an entrance fee, but it is possibly easier to collect and more politically palatable. A hotel tax would bias visitors away from overnight visits, and in many places, like Venice, most tourists already do not spend the night.

Possible distortions will be created if user fees are used for some sites but not others. Fee patterns will influence both the number of visits tourists make and how those trips are distributed across sites. This, in itself, is not necessarily bad. However, strategic distortions can occur. There can be a game-theoretic aspect to user fees. Substitute site might strategically compete with one another by lowering fees until an inefficient Nash equilibrium is reached. Merchants, hotel managers and restaurant owners will argue that user fees will shift commerce and jobs to other areas.

7.2 TAXES NOT RELATED TO USE

A strong argument can be made for funding a significant component of restoration and preservation out of general tax revenues. Cultural amenities have a public goods aspect: nonuse benefits to one do not preclude benefits to others. Often the nonuse values associated with preservation are both significant and experienced by most people. In addition, restoration or preservation of a micro site often conveys positive external effects on other micro sites, due, in part, to complementarities among sites.

7.3 VOLUNTARY CONTRIBUTIONS TO CAPTURE USE BENEFITS

Private firms (hotels, restaurants, shops) that benefit from proximity to cultural amenities might have an incentive to contribute to the preservation and restoration of those amenities. Two factors that significantly affect such contributions are market interest rates and free riding.

Many cultural amenities are being degraded but the rate of degradation is often at a snail's pace compared to the market rate of interest. This is a significant reason why the market does not allocate more resources towards preservation. Preservation is often not profitable because, using market rates of interest, the present value of the future revenues do not warrant the necessary current expenditures.

Collective and private action by a group of firms is more likely the fewer the firms affected by the amenities. Collective voluntary action by the merchants in a small town such as Urbino is more likely than collective voluntary action by the merchants of Rome. When many agents are impacted, free riding is too attractive. In such cases, the powers of the government are needed to coerce the individual agents towards what is best for the group.

Consider also voluntary user fees for visitors to Venice or a cathedral. Some suggestions for maximizing contributions by tourists include:

- Clearly posting suggested contributions
- A gate through which one must ask for entrance
- Providing a memento acknowledging the contribution, a lapel pin, for example.
- Price discrimination; that is, different suggested contribution levels for students, families, seniors, and locals.
- Posted information on the degradation due to use.
- Posted information stating that the collected funds will be used for restoration.
- In addition, additional contributions can be solicited for very specific restoration projects at the site. For example, stating that funds are needed to restore an altar or fountain. Such solicitation would indicate the cost of the specific project, and provide information as to what the restoration would accomplish. Pictures of what the restored amenity will look like will help.

7.4 VOLUNTARY CONTRIBUTIONS TO CAPTURE NONUSE BENEFITS

If sites generate significant nonuse values, there is potential to generate funds for restoration by soliciting nonusers. Nonuse values for cultural sites often greatly exceed use values. For example, millions of residents of the U.S. value the historical/religious sites of Italy, even though most of them will never see them.

For example, the U.S. non-profit organization *Save Venice* (<http://www.savevenice.org/index.html>) was founded in 1967 in response to the damage caused by the flood of the preceding November. It was one of more than 30 international committees formed under the umbrella of UNESCO to restore and protect Venice's threatened masterpieces. It has funded more than 100 restorations and raises over \$500,000 a year in contributions. One can donate directly on its web page. The page includes a wish list of projects with their cost and where one can make a donation directly to funding of that project. The following is an example:

Project: Scola Cohanim

Artist: Venetian school, 17th century

Location: The Spanish Synagogue, Jewish Ghetto

Media: Marble and walnut

Proposed treatment: Cleaning and restoration

Sponsor status: No current sponsor

In 1733, when a large group of Jewish students from Livorno arrived in the city of Venice for the very first time, they went directly to the Spanish Synagogue in the Campo Ghetto Vecchio (old Ghetto) which served as the official seat of this multi-national community.

The event itself is commemorated by inscriptions above the entrance to the small ground-floor midrash, or prayer and study room, which was endowed in 1893 with seventeenth century wood furnishings from a larger synagogue, the Scola Cohanim (founded in the sixteenth century in Campo Ghetto Nuovo). As the room itself is long and narrow with low stuccoed ceilings, the aron and bimah are placed at the center of the two walls, directly facing each other. Their close proximity is in surprising contrast to the architectural dispositions of other synagogues of the time.

The aron, bimah, benches and wainscoting, all of which are carved of fine walnut, are in urgent need of cleaning and restoration, as is the marble arch that frames the entranceway to the room.

\$64,000 is needed for this restoration - [Make A Donation](#)

The projects on the current wish list have budgets that vary from \$1,000 (to restore one book) to \$130,000. This range is low enough on the low end that many individuals could fund a significant proportion of a project and be acknowledged for doing so. The web site lists completed projects and the names of the sponsors that funded those projects. People want their contribution to have significance, know what they are getting, and be acknowledged. *Save Venice's* solicitation method accomplishes these goals. The cultural significance of the projects is explained along with what will be done if the project is funded. The above description could include more with respect to what will happen if restoration is not undertaken.

The approach taken by *Save Venice* is well suited to funding the restoration of micro sites, but not for big issues such protecting Venice from flooding. Restoring churches and libraries is inefficient if Venice sinks. The efforts of this type of organization must be part of a larger endeavor, one possibly funded by the Italian Government

or an organization such as the United Nations. *Project Moses*, the proposed flood gates for the Venetian lagoon have an estimated cost of approximately \$2 billion (Piazzano. 2000 and Standish 2001).

Numerous restoration projects in Italy are funded by the World Monument Fund (<http://www.worldmonuments.org/>). Its goal is to encourage the conservation and preservation of culturally and historically significant works of art and architecture worldwide. Its activities include documentation and surveys, field research, training, strategic planning, fund raising, and advocacy. The Fund encourages contributions by publishing a Watch List of the *101 Most Endangered Sites*. Three of the sites on the 2002 list are in Italy. Since this program's inception, more than 204 grants to 123 sites in 57 countries have been awarded for a total of \$11.3 million, a significant proportion coming from large corporations such as American Express. The Fund also solicits donations from individuals, and allows donations to specific projects if the donation is at least \$1000.

Much of the private funding for major restoration projects in Italy comes from corporations and large non-profit organizations. In addition to the above examples, numerous restoration projects in Rome are currently underway with funding from Banco di Roma and the J. Paul Getty Foundation. Banc di Roma is funding an ongoing multimillion dollar project to restore the Colosseum (Tabliabue. 1995, National Geographic News. 2001). In 1995 only 15% of the Colosseum was open to the public; when the project is completed in 2003, 85% should be visible.

The Nature Conservancy, a U.S. nonprofit organization devoted to preserving natural environments, is a possible model for soliciting nonuse values for cultural preservation. It collected \$786 million from its over one million members in 2000, making it the 9th ranked nonprofit in the U.S. (<http://nature.org/aboutus/annual/art2277.html>). Recently it has started running fund raising ads on the major U.S. television networks. The Nature Conservancy operates by purchasing land for preservation, buying preservation easements, funding maintenance on its lands and subsidizing maintenance on private lands. A significant amount of what they preserve is closed to use after it is purchased, so nonuse benefits are a major component of the services provided. Restricting harmful access is typically easier for a private owner. Members and donors can get detailed information about what the Nature Conservancy has preserved through its publications and web pages. One can contribute to their general fund, donate by region, or donate to a specific project. While membership in an Italian cultural

conservancy would be open to all, the majority of members would be Italian. If Italians contributed to such an organization at the same rate as Americans contribute to the Nature Conservancy, it would have an annual budget of approximately \$170 million.

An important component of soliciting funding for cultural preservation in Italy and elsewhere is determining who values preservation and the extent of those values, also the nature of the value because it relates to how best to extract willingness to pay. Put simply, one needs to identify potential contributors, willingness to pay, and how best to solicit the money. Economists working in the area of nonmarket valuation can play an important role.

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Endnotes

1. See <http://www.colorado.edu/Economics/morey/>.

2. Choice of the discount rate will often be critical. Assuming even moderate discount rates, slowing rates of deterioration will often not be efficient. For example, with a discount rate of 5% it does not matter whether the Colosseum is gone in 150 years or 200 years.

3. A painting or statue is not a site-specific resource unless it is viewed as belonging to a site. An example of a statue that belongs to its site is the Pieta. An art museum with many paintings is a site-specific resource because, for one, the complementarities amongst the paintings.

4. Hundreds of travel-cost models have been estimated. Most fall in one of two categories: discrete choice random utility models (see footnote 5) and neoclassical type models. The discrete choice models divide the time period into a finite number of choice occasions and on each choice occasion the individual must choose one of a finite number of alternatives. On each choice occasion the individual chooses the alternative that maximizes his utility, independent of what he or she did on other choice occasions. The neoclassical type models assume the individual has a preference ordering over a time period sufficiently long that multiple visits are possible. These models, unlike the discrete-choice models, admit diminishing marginal utility associated with visits. For a recent example of the neoclassical approach see Morey et al. (2001a), which cites other examples.

5. For an introduction to discrete-choice logit and nested-logit models of participation and site choice see Morey (1999). Examples of empirical studies include Bockstael et al. (1986, 1987 and 1991), Carson et al. (1987), Morey et al. (1993, 1995 and 1997), and Kling and Thomson (1996). Additional examples of discrete-choice models of recreational demand between 1988 and 1997 are Bockstael et al. (1989), Creel and Loomis (1992), Hausman et al. (1995), Morey et al. (1991), Parsons and Kealy (1992 and 1995), and Parsons and Needleman (1992). Earlier examples are Caulkins et al. (1986), Feenburg and Mills (1980), Hanemann (1978), and Morey (1981). For an application to the demand for site-specific healthcare providers see Morey et al. (2001d).

6. See, for example, Roback (1982), Blomquist et al. (1988), and Graves and Waldman (1991).

7. For example, property values are influenced by proximity to undeveloped coastline (Dale-Johnson and Yim, 1990; Frech and Lafferty, 1984), retail sites and highways (Waddell et al., 1993), traffic (Asabere, 1990), and open space (Correll et al., 1978). See also Linneman (1981).

8. Unless of course the nonuse values are negative.

9. Wittink and Cattin (1989) survey the commercial use of choice questions; use is widespread. For survey articles see Louviere (1988 and 1992), Green and Srinivasan (1990) and Batsell and Louviere (1991). Hensher (1994) provides an overview of choice questions as they have been applied in transportation. Louviere (1994) does the same for marketing.

10. Choice experiments to value sites include Adamowicz et al. (1994, 1997), Breffle et al. (2001a), Mathews et al. (1997), and Morey et al. (2001b). For an introduction to stated-choice methods, see Adamowicz et al. (1998),

11. Manski (1990 and 1999) and Breffle (2001b) model the responses as statements of intentions in a world of uncertainty.

12. Choice experiments to value changes in the state of the world include Adamowicz et al. (1998), Breffle and Rowe (2001), Layton and Brown (2000), Magat et al. (1988), Morey et al. (2001c), Swait et al. (1998), Viscusi et al. (1991).

13. For a discussion of the debate and the underlying theory see Morey (2001).

14. I know of one contingent behavior study conducted to estimate supply functions for undeveloped land (Conrad and LeBlanc, 1979). More generally, *cvm* is widely used to estimate environmental benefits and costs (see Portney (1994); Hanemann (1994); Carson (1991); Carson et al. (1993), and Randall (1993)). *cvm* is also heavily criticized, particularly with respect to nonuse values (see, for example, Diamond and Hausman (1994); Desvousges et al. (1993); and Neill et al. (1994)).

15. Combining stated and revealed preferences data is widely supported. See, for example, McFadden (1986), Ben-Akiva and Morikawa (1990), Morikawa et al. (1990), Cameron (1992), Louviere (1992), Hensher and Bradley (1993), Adamowicz et al. (1994, 1997), Ben-Akiva et al. (1994), Swait et al. (1994), Morikawa et al. (1991), Louviere (1996), Kling (1997), and Mathews et al. (1997). See also the references on page 15.

16. See for example, Morey et al. (1995) where the value per fishing day for cleaning up some trout streams was three times higher for nonresident anglers.