



Valuing Cultural Heritage

Ståle Navrud and Richard C. Ready

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Applying Environmental Valuation Techniques to Historic Buildings, Monuments and Artefacts

Edited by

Ståle Navrud and Richard C. Ready



An excellent introduction to an important, and often neglected, topic. *Valuing Cultural Heritage* combines a useful primer on the theory of economic valuation followed by a dozen interesting case studies from eight different countries. The cultural resources studied include traditional cultural monuments and assets such as castles and cathedrals in Norway and the UK, a royal theatre in Denmark, monasteries in Bulgaria, and marble monuments in Washington D.C. However, the volume also includes studies on less commonly considered assets such as the value of an entire historic quarter in Fez, Morocco, cultural services of Italian museums, or rock paintings in the Canadian woods, and, in a very interesting application of the approach, the benefits from reducing visual and noise pollution near Stonehenge by burying a nearby highway. Although contingent valuation techniques (CVM) predominate, other approaches are also illustrated. The volume is made even more valuable by an exceptionally good summary chapter that provides clear guidance on lessons learned and best practice to guide future work. I highly recommend this book for both researchers and policymakers.

John A. Dixon, The World Bank, USA

VALUING CULTURAL HERITAGE

Applying Environmental Valuation Techniques to Historic Buildings, Monuments and Artifacts

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Chapter 1

Why Value Cultural Heritage?

Richard Ready and Ståle Navrud

The readers of this book are well aware of the challenges facing our built cultural heritage. Agencies and organizations whose mission it is to protect and preserve historic and culturally important buildings, monuments, and artifacts from the ravages of weather, pollution, development, and even use by the general public must compete for needed resources with other social goals. Should we raise taxes to increase spending on cultural heritage, or should we divert resources away from some other worthy cause such as education, health care, or aid to the poor? What is the proper level of expenditures on cultural heritage? Given limited resources, priorities must be set among competing preservation and restoration goals. Given the myriad different types of cultural heritage and the myriad pressing problems, which problems should be addressed first? At the same time, some question the proper role of government in providing cultural heritage goods. Should preservation and restoration efforts be supported by tax revenues, or should cultural heritage goods be self-supporting, either through user fees or donations and subscriptions?

These challenges and questions are remarkably similar to those faced in another area of public policy – environmental policy. In that arena as well there are issues of how much resources to dedicate to protecting and enhancing environmental quality, which aspects of environmental quality to spend those resources on, and who should provide those resources, and how. The field of Environmental Economics has developed to address these issues, and provides a consistent, coherent way to frame these questions. Consideration of cultural heritage goods could benefit from applying such a framework, if only because it provides another perspective on these issues.

Cultural Heritage as a Public Good

Cultural heritage goods are similar to environmental goods in that they are typically *public goods*. Economists have a very precise definition of what a public good is. In order to be a pure public good, the good must have two properties. First, public goods are *non-excludible*. That means

that it is technically infeasible to keep users from enjoying the good. Cultural heritage goods vary in their degree of excludibility. Viewing an artifact in a museum is an excludible activity – it is easy for the museum to keep you out if you don't pay. However, sightseeing in an historic area of an old city is typically not an excludible activity – it is impractical to try to charge admission to a living part of a city. In between these two extremes are a range of possibilities, where it is feasible to exclude use of the cultural heritage good, but may be costly to do so.

Excludibility is an important consideration, because economic theory tells us that private, profit-driven, markets will not produce enough non-excludible goods. It is easy to see why. If you cannot keep people from enjoying the good you provide, then you cannot force them to pay for it. If you cannot get your customers to pay you, then you cannot make a profit. If you cannot make a profit, then you do not provide the good in the first place. If we rely on private providers to preserve our cultural heritage, only those goods with high market demand will be protected.

This result is fairly straight-forward, but it can have subtle implications. Consider a land-owner who has a beautiful example of period buildings on his farm. The land-owner knows that passers-by on the road enjoy looking at these buildings, but he cannot extract any payment. The buildings are generating social benefits, but those benefits are accruing to the passers-by, not to the owner. That owner has no incentive to preserve the buildings, and indeed may not have the resources necessary to do so.

Even where a private provider can charge some fees, those fees may not represent all of the benefits being generated by the good. Consider a castle on a hillside overlooking a town. The owner of the castle may be able to charge tourists who want to go into the castle an entry fee, and therefore may have some incentive to preserve the condition of the castle. But even though he can capture some of the value that the castle generates, he will not be able to charge people who enjoy looking at the outside of the castle. Indeed, if the castle is sufficiently important, there may be people far away that gain some enjoyment just from knowing that the castle is in a good condition. The owner will not be able to capture those values, and may allow the castle to deteriorate even though the benefits, to all those who receive them, are sufficient to justify the costs of preserving the castle.

The second characteristic of a public good is that it is *non-rival* in consumption. That means that two different people can enjoy (consume) the public good at the same time without interfering with each other's enjoyment. A perfect example would be a statue in a public square. I can look at a statue, and enjoy it, at the same time that you do the same. As long as there are not too many of us trying to do the same thing at the same time, we can consume the good simultaneously without diminishing the value that each receives from the good. This aspect of cultural heritage is important because if a cultural heritage good is non-rival in consumption, then it will always be better to allow more people to enjoy it than to allow fewer. Even if exclusion is feasible, it is not desirable as it reduces the total number of people enjoying the good, and so the total enjoyment that the good provides.

Many cultural heritage goods exhibit intermediate levels of rivalness. A cathedral that receives many visitors may become so crowded that each visitor's enjoyment of the experience becomes diminished. Such a cathedral would be a *congestible* public good. Or, the presence of the visitor may actually damage the cultural heritage good itself. In either case, in contrast to the pure public good case, it may be desirable to limit the number of people who visit the site. One way to limit visitation is by charging an entry fee. As compared to other means of limiting entry, such as cueing, an entry fee has a couple of advantages. It generates revenues that can be invested in the cultural heritage good, and it assures that the limited number of entry slots go to those who place the highest value on the experience.

If we do not trust private for-profit providers to supply enough cultural heritage goods, then it is up to the government and not-for-profit organizations to do so. But how much cultural heritage goods is the right amount? We live in a world with limited resources, and must make tradeoffs among competing objectives. Here, again, the theory of public goods can help guide us. That theory states that the correct amount of a public good is determined by comparing the marginal cost of providing more of the good to the marginal social benefit of providing more of the good. How would this work in practice? Suppose there are 100 culturally-significant sites in a city, and that we don't have money to protect them all. We would calculate the cost of protecting one site, of protecting two sites, and so on. We would then compare those costs to the benefits of protecting one site, of protecting two sites,

and so on. The socially-optimal number of sites to protect is the number where the additional cost of protecting one more site is equal to the additional benefit from protecting one more site, so that the cost-benefit ratio for the last site considered is equal to one. The same type of analysis can also help guide the decision of how much to spend on each site.

Clearly, in order to use this framework, we need to be able to estimate the benefits and costs of providing cultural heritage goods. This book does not consider in detail the issue of estimating costs. That is best done by experts in the provision of cultural heritage goods. This book is concerned with estimating the values generated by cultural heritage goods, i.e. the benefits. There is a large body of literature and experience in estimating values for environmental public goods. Because these goods are not traded in markets, the methods developed for valuing them are referred to collectively as non-market valuation techniques. The purpose of this book is to explore how these methods, developed for estimating environmental values, can be applied to cultural heritage goods.

These methods provide information that can be of use when addressing a variety of policy issues related to cultural heritage. First, values estimated using these methods can help inform decisions over the level of funding of cultural heritage. Public values for cultural heritage goods can provide a strong argument in favor of public funding for those goods. Second, public preferences can help when making decisions among cultural heritage goods. While there is always a central role for expert opinion in deciding which types of cultural heritage goods will receive attention, information about the general public's preferences over such decisions is a useful complement to expert judgement. The methods discussed in this book allow measurement of those preferences. Finally, those same methods can help inform decisions about funding of cultural heritage goods. They can show the possibilities and limitations of relying on contributions or access charges in supplying a good that generates values to a much broader set of people than just those few who choose to visit the good or donate to its preservation.

What is “Value?”

In the preceding section, the terms “value” and “benefits” were used in a very loose way. But economics has more precise definitions of these terms. In Chapter 2, these terms will be defined

formally. Here, we wish to give the reader an intuitive understanding of how economists define the “value” that someone receives from a cultural heritage good.

The guiding principle in defining what is the value of a public good such as cultural heritage, is that the definition should be logically consistent with how we measure value for a private, market good. Market goods have a market price, but that price is not always a good indicator of value. There are many reasons why the price may overstate or understate value, including the imposition of distortionary taxes, quotas that limit the quantity supplied or purchased, and price controls. More generally, we define the value that a consumer gets from using a market good to be the largest amount of money that the consumer would willingly pay to get the good. So if a consumer is willing to pay £10,000 for a new car, but the price is £12,000, the value to that consumer is his willingness to pay (WTP) for the car, not its price. If someone else decided to give him the car for free, the benefit to the recipient of receiving the car would be £10,000, not £12,000 (assuming he is restricted from selling the car).

For a public good such as cultural heritage, we adopt the same general definition. The value that a person gets from being able to enjoy a cultural heritage good is defined as the largest amount of money that that person would willingly pay to have that opportunity. For a cultural heritage site, then, the use value that a visitor receives would be defined as the largest amount of money that the visitor would be willing to pay, over and above any actual entry fee, to gain access to the site. We find the total use value generated by the site as the sum of all of the individual visitors’ WTP’s.

Use Value vs Non-use Value

In the above paragraph, *use value* is defined as the maximum WTP to gain access to the site. However, a cultural heritage site might generate values even to those who do not visit the site. *Non-use value* includes benefits that people enjoy because they know that the site is being preserved. These benefits might be motivated by a desire that the site be available for others to visit (*altruistic values*), that the site be preserved for future generations (*bequest values*), that the current non-visitor may decide to become a visitor in the future (*option value*), or simply that the site be preserved, even if noone ever actually visits it (*existence values*). This last category of non-use benefits might

motivate why, for example, we might want to expend resources to protect cultural heritage goods that are considered too fragile to be opened for viewing by the general public.

As with use values, we can define the size of non-use values using our market analogy of WTP. The non-use value that a non-visitor receives from preservation of a cultural heritage good is the largest amount that he would willingly pay to be assured that the cultural heritage good is preserved. This is not the same as the amount that he would donate to its preservation. When the resources for provision of a cultural heritage good are being generated through donations, there is a strong incentive to free-ride on the donations of others. Economic theory tells us that the amount of the donation we observe will be lower than the full value that the person receives from the good. The challenge is to measure the full WTP for the good in situations where the user or non-user is not required to pay anything. We discuss this challenge more in Chapter 2.

Extent of the Market

The total value of a cultural heritage good will then include both use values and non-use values. The relative importance of these two categories of values will vary widely among cultural heritage goods. Another related issue is determining the “extent of the market,” that is, the total population who hold values for the good. A local cultural heritage good may generate values only for those who live in close proximity to the good. An example might be an historic building in a small town. While such a good might generate both use and non-use values for the residents of that town, or visitors to the town, we would not expect large values for people who live some distance from that town. In contrast, a national cultural heritage good may hold some importance for all citizens of a country. An example might be the building where an important national document was signed. Such a site could also generate both use and non-use values, but here we could expect non-use values for preservation of the building even among those who live some distance from the building, and who never plan to visit it. Finally, there are some global cultural heritage goods. Many of these, but certainly not all, have been designated as world heritage sites. Goods such as the Buckingham palace, or Machu Picchu, or the Great Wall of China generate values for people who live in distant countries and who never plan to visit those sites.

Consideration of the extent of the market is important because, when measuring the value associated with a cultural heritage good, we must decide who's values to include. Most cost-benefit analyses are conducted either at the national level or some regional level. This is done to match the jurisdiction of the body making the decision and spending the money. If it is a national government that is committing money to preservation of a cultural heritage good, then that government will want to consider the benefits enjoyed by all of its citizens, but will likely not care as much about benefits enjoyed by citizens of other countries (except to the extent that those benefits flow back to the host country as tourism revenues). Likewise, a local government that has power to tax only the local population will want to be sure that the benefits to the local population exceed the costs of an investment. This natural tendency of funding agencies can lead to problems, though, when considering global cultural heritage goods. If a national government of a less-developed country that contains a globally significant cultural heritage good decides issues of preservation based only on benefits to the citizens of that country, it may conclude that preservation is too costly. In such a situation there is a clear need for both an analysis that includes values accruing outside the country, and for investment in the good from sources outside the country. Studies such as those contained in this volume can help international organizations decide how much resources to expend on such global goods, and where.

The Role of Values in Decision Making

The techniques and results described in this book provide a consistent way to measure the benefits provided by cultural heritage goods. These can then be compared to the costs of providing those goods. However, that comparison is not sufficient for making policy decisions. If a cost-benefit analysis that uses non-market valuation shows that a specific investment in a cultural heritage good has a positive net benefit (benefits exceed costs), that is a useful piece of information to the decision maker, and a powerful argument in favor of committing funds to the project, but it is not sufficient information for making the decision. Likewise, a negative net benefit is not sufficient for determining that an investment should not be made. There may be good reasons for investing in the public good even though it does not generate positive net benefits. We may wish to provide the good so that less-

advantaged members of society can enjoy it, even though those members have low WTP for the good due to their limited resources. We may wish to preserve certain types of cultural heritage even though the tastes of the current generation do not favor that particular type of good. Finally, we may feel compelled to preserve cultural heritage goods out of a sense of duty and moral purpose, regardless of the preferences of the general population. Even so, information about that population's preferences can only improve decision making.

Nor is the availability of techniques for measuring the values of cultural heritage goods a substitute for expert analysis and opinion. The general population values cultural heritage goods in the context of what they know about it. Expert opinion of the relative importance of different goods will inform public preferences, and public values. Likewise, the expert has an important role in framing the decisions – determining what the options are and where and when the decision points lie. Finally, the expert informs the decision directly. The decision maker should treat the expert's judgment and the public's preferences both as valid pieces of information when making decisions about cultural heritage goods.

Overview of the Book

The remainder of this book looks in detail at how non-market valuation techniques can be applied to cultural heritage goods. In Chapter 2, we present the most important techniques used in valuing public goods, and discuss some of the challenges and opportunities associated with applying those techniques to cultural heritage. In Chapters 3 through 14, we present case studies where these techniques have been used to value specific cultural heritage goods in a wide variety of contexts and countries. Chapter 15 reviews most of the cultural heritage valuation studies that have been done to date, and attempts to draw some general conclusions about both the results of those studies and about the utility of valuation of these types of goods.

Chapter 15

Review of existing studies, their policy use and future research needs

David Pearce, Susana Mourato, Ståle Navrud and Richard C. Ready

Review and classification of cultural heritage studies

In spite of the obvious links between questions of the conservation of natural and cultural goods there have been surprisingly few applications of non-market valuation techniques to cultural assets. Only a small number of studies, using almost exclusively stated preference techniques, have been applied to cultural heritage goods. Many of these studies are described in detail in the previous chapters.

Table 15.1 present an overview of 27 studies valuing mainly historical buildings, monuments and artefacts. We have also included a few examples of contingent valuation studies of other cultural goods and services such as museums and performing and visual arts. All of these studies apply stated preference techniques, which are unique in their capability of measuring both use and non-use values arising from cultural capital. As is evident from the table, not only the number of existing studies is small but also the studies span a wide range of goods and situations. Six of the sites studied are part of UNESCOs World Heritage List.

Table 15.2 classifies the studies according to the type of benefit estimated and the type of cultural good/activity studied. Here we have differentiated among different types of cultural heritage goods including single buildings, groups of building, monuments, archaeological areas and artefacts, and other goods including performing arts and museums. It is apparent from this table that cultural heritage is a complex, multifaceted good. Not only is there a diversity of physical assets involved (the columns in Table 15.2), there is a diversity of services, qualities, and policy issues for each (the rows in Table 15.2). The studies listed represent just the first small steps in considering the breadth of cultural heritage goods.

-----TABLES 15.1 AND 15.2 ABOUT HERE-----

Main lessons from existing empirical evidence

While the conclusions of each study are different, some consistent findings emerge from the studies that have been conducted to date:

- (a) *Few economic valuation studies* have been undertaken in the area of cultural heritage (either built or movable heritage). All studies reviewed here use stated preference methods, mainly contingent valuation, and there exist very few applications of revealed preference methods¹.
- (b) The *existing studies vary widely* both in terms of the type of good or activity being analysed and the type of benefit being evaluated. There are some instances where similar goods were evaluated. However, the type of benefit estimated is usually different as is the sample frame used, making it difficult to make meaningful comparisons among studies.
- (c) Generally, the findings suggest that people attribute a *significantly positive value* to the conservation or restoration of cultural assets. The implication is that damages to cultural goods are undesirable and that the public would be willing to pay positive amounts to avoid them or to slow the rate at which they occur.
- (d) Several of the studies show a *relatively large proportion of respondents stating a zero WTP* (up to 89%). Some of these responses can be considered protests against some

¹ For applications of the travel cost method on performing arts, see e.g. Martin (1994) and Forrest et al (2000)

aspect of the survey instrument (i.e. a dislike of paying taxes or a rejection of the contingent scenario) and thus are not a reflection of people's true preferences. Others, however, are 'genuine' zero values arising from budget constraints, lack of interest in cultural issues and from the fact that cultural heritage preservation is typically ranked low amongst competing public issues, as is shown consistently by attitudinal questions. Hence, the welfare of a significant proportion of the population seems to be unaffected by changes in cultural goods/activities. In some instances, the positive estimated values are driven by a minority of the population, typically, the users of the cultural good and the richer and more educated segments of the population. This finding has important implications for the funding of cultural heritage goods. For example, in instances where more than two thirds of the population express a zero WTP, the imposition of a tax may be infeasible; targeted voluntary donations or entry fees may provide more appropriate means of extracting existing values (although the former invites free-riding behaviour); or, if a tax mechanism is used care must be taken to ensure that the distributional effects are taken into account with off-setting expenditures;

(e) *Values for users (visitors or residents) are invariably higher than for non-users.* This indicates that there can be significant values from recreation and education visits. A number of issues should be taken into account when designing pricing mechanisms: the implications of the current focus on making heritage available to the general public; and the possible trade-off between access and conservation that suggests the importance of calculating congestion costs and tourist 'carrying capacity' of a site. However, user values alone may not be enough to deliver sustainability for the large majority of cultural goods and services;

(f) *Non-visitor benefits are positive.* In cases where the relevant population benefiting from improvement or maintenance of the cultural good is thought to be very large, possibly

crossing national borders, the total aggregated benefit can be very large. This is the case when unique and charismatic cultural heritage goods are at stake. However, the available evidence also suggests that the proportion of those stating zero WTP is largest amongst non-users;

- (g) The issue of *competing cultural goods and of part-whole bias* (when the value of a group of cultural goods is not significantly different from a smaller subset of those goods) has been insufficiently addressed by the existing studies. This issue may be less of a problem for flagship cultural goods with no substitutes (e.g. the Pyramids in Egypt), but may be very severe when cultural goods perceived as being non-unique are being evaluated (e.g. historical buildings, castles, churches and cathedrals). If this bias exists, the estimated values for a particular cultural good may reflect a desire to preserve all similar goods, and thus overstate the value of the good;
- (h) Little attention has been given to the *periodicity of the elicited WTP values*. While it is difficult to compare values across studies of different goods, there appears to be a pattern where less periodic payments result in lower WTP amounts. This could be an indication of temporal embedding, where respondents may give lump-sum amounts that are lower than the present value of periodic WTP values using market discount rates. Tests for this kind of bias should be incorporated in studies using one-off or very periodic payments.
- (i) Finally, we see authors dedicating a great deal of attention to presenting an *accurate description of the good* to be valued, presented in a form that meaningful to the respondent. This has two components. First, it is of critical importance that the level of provision of the good match expert assessments of the with-project situation. For example, when valuing impacts from air pollution, it is necessary to match up the valuation scenarios with projections made by atmospheric and materials scientists.

Second, these differing levels of quality must be presented in a way that respondents can understand. Several of the studies included photographs and maps to help in this regard.

It is striking to note that all of these conclusions apply equally to studies that value environmental goods. There, we have an equally diverse set of goods that can have values that are highly site-specific, though far more environmental valuation studies have been conducted to date than cultural heritage valuation studies. There too we often see a combination of large use values per person held by a few visitors and small non-use values per household held by a large population of non-visitors. Likewise, in environmental valuation, we face part-whole and embedding issues requiring careful construction and pretesting of the survey instrument. Finally, presenting an accurate and meaningful description of the good to be valued is equally important when valuing environmental goods, and we see many of the same types of visual aids in use.

While the valuation of cultural heritage goods is certainly challenging, it is no more challenging, or fundamentally different from, the valuation of an environmental good that has a significant non-use component. Indeed, in one of the studies listed (Bølling and Iversen 1999), the authors valued both a cultural heritage good and an environmental good in the same survey. We expect non-market valuation techniques to perform equally well for cultural heritage goods as they have for environmental goods, where literally thousands of studies of been conducted.

Still, it is somewhat surprising that more studies have not been conducting using either the Travel Cost Method or the Hedonic Pricing Method. Chapter 2 discusses the challenges of applying these techniques to cultural heritage goods, but we do see some potential for their use.

Policy use of cultural heritage values

There are clear potential policy uses of the value estimates generated by the studies discussed here. First, valuation estimates are useful for evaluating whether to undertake projects to protect or restore cultural heritage goods. For example, the study valuing road removal at Stonehenge (Chapter 7) provided benefit estimates that could then be compared to estimates of the cost of road construction and removal. It is interesting to note that after completion of that valuation study, the decision was indeed made to go ahead with that project. Both the valuation study of the Fes Medina and of buildings in Split, Croatia were conducted as part of project analyses conducted by the World Bank, and will be used to evaluate continued funding for those projects.

Second, valuation estimates are also useful for determining the level of investment in ongoing activities to provide or protect cultural heritage goods. Here, the studies of the Nidaros and Lincoln Cathedrals (Chapters 3 and 5) are good examples, where the study results can be used to determine how much effort and resources should be devoted to restoring and preserving the appearance of the cathedrals. Similarly, the study of marble monuments in Washington, D.C. helps inform EPA decisions about air quality regulation. More studies are needed that value different levels of provision or quality of cultural heritage goods.

Third, valuation results can inform decisions when choices have to be made among competing objectives within cultural heritage. The Nidaros Cathedral study (Chapter 3) provides information about public preferences over the aesthetics of the building and the degree to which the outside of the building is original. The Stonehenge study (Chapter 7) contrasts values of on-site users and values of passing motorists.

Fourth, valuation results can be very useful in informing decisions about the funding of cultural heritage goods. Not only do the study results show the diversity in values held by

the population, they can also be used to predict what will happen if increased reliance is placed on entrance fees. Two of the studies (Durham Cathedral, Chapter 4 and Napoli Musei Aperti, Chapter 14) found that revenues from access fees might be lower than revenues from voluntary donations, because they exclude a large number of users with low WTP.

Future research needs

Table 15.2 shows clearly the most pressing research need in this area – more studies are needed on the diverse array of cultural heritage goods. Still, we are not hopeful that we will ever reach a point where “enough” studies have been conducted. One lesson we can take from the environmental valuation literature is that *benefit transfer*, that is the application of values estimated at one site to policy issues at a geographically different but similar type of site, is often unreliable. Environmental values and cultural heritage values are naturally highly site- and good-specific. We do not anticipate that there will ever be a catalogue of values from which decision makers can select an appropriate number for the new policy issue they face.

It may turn out that groups of cultural heritage goods have similar values. To date, there are too few studies to judge the extent to which values for cultural heritage vary. Whether value estimates will vary much from site to site and good to good is still an open empirical question. We can state, however, that for benefit transfer to work at all, it must be between sites that are very similar, both in the physical good being valued, the change in the good and the population holding the values.

We would like to see new valuation studies designed to address specific policy problems, rather than provide general values for the goods. Knowing the amount that a visitor is willing to pay to gain entry into a cathedral does not help us decide whether to restore damaged portions. Similarly, we would like to see more emphasis on research into

tradeoffs among competing objectives, for example tradeoffs between access and deterioration due to that access. Non-market valuation techniques are uniquely well suited for considering issues that involve tradeoffs between use values and non-use values.

Conclusion

The valuation studies described in previous chapters were selected to show the heterogeneity of our cultural heritage and the policy issues that arise regarding its preservation. Together with the other studies listed in table 15.1 they clearly show that non-market valuation techniques can be successfully applied to cultural heritage objects of local, national and even global significance (e.g. UNESCO World Heritage Sites), and objects that have different functions including objects with multiple functions (e.g. churches and monasteries which are both tourist attractions and have important religious functions). The existing studies also cover both developed and less developed countries, and transition economies. Some of the studies were conducted to inform policy decisions, and have proved useful in cost-benefit analyses of restoration and preservation programs for cultural heritage, as well as infrastructure projects and air pollution policies with impacts on cultural heritage. The information generated by such studies can be a valuable complement to expert judgement. We expect to see an increased use of these non-market valuation techniques to help inform policies regarding cultural heritage in the future, in much the same way as these techniques are now contributing to formulating environmental policy.

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Table 15.1. Review of cultural heritage valuation studies. Studies presented in this book are numbered according to their chapter number. Other studies are assigned a letter, for use in Table 15.2.

Study and nature of the asset	WTP (US\$) ¹	WTP definition ²	Annuity (US\$) ³	% zero WTP	% of stated income ⁴
Valuing the impacts of road improvements upon Stonehenge, UK. Contingent valuation * (Chapter 7)	20-23: on-site, nationals	Household, annual,	2.3-2.7	55%	0.08-0.09
	6-11: off-site, nationals	2 years, PC/CA, tax,	0.7-1.3	65%	0.03-0.06
	0.3-2: on-site, foreigners	(entry fee for foreigners)	0.02-0.1		0.0001-0.0004
Valuing aesthetic changes in the Lincoln Cathedral due to air pollution, UK. Contingent valuation. (Chapter 5)	1-2 per year of soiling, residents of Lincolnshire	Household, annual, DB DC, tax	1-2	<19%	0.005-0.01
Non-Moroccan values for rehabilitating the Fes Medina, Morocco *. Contingent valuation. (Chapter 9)	38-70: Fes visitors	Individual, per trip, SB DC	2.4-4.4	Approx. 17%	n.a.
	22-31: Morocco visitors	tax	1.4-2.0	Approx. 19%	
Non-Moroccan values for rehabilitating the Fes Medina, Morocco *. Carson et al 2001 - M Delphi - Contingent Valuation Survey of 30 European environmental economists	6-17: European non-visitors	Household One-time Payment, OE none	0.4-1.1	> 15 %	n.a.
Valuing access to Durham Cathedral, UK *. Contingent valuation. (Chapter 4)	1.4	Individual, per visit, OE, fee	56 (average no.visits = 41)	36%	0.2
Valuing the preservation of Bulgarian monasteries, Bulgaria *. Contingent valuation (Chapter 6).	0.6-1	Household, annual, OE, tax	0.6-1	39%	0.1-0.2
Valuing acid deposition injuries to marble monuments in Washington, DC, USA Contingent valuation. (Chapter 11)	16: low impact 23: medium impact 33: high impact	Household, one-time only, CA, none	1.0 1.5 2.1	8% (approx.)	0.003-0.006
Valuing the conservation of	216	Individual,	58	18%	0.5

Study and nature of the asset	WTP (US\$) ¹	WTP definition ²	Annuity (US\$) ³	% zero WTP	% of stated income ⁴
Campi Flegrei archaeological park in Napoli, Italy. Contingent valuation. (Chapter 10)		Annual, 5 years, SB DC, donation		(approx.)	
Renovation of historical buildings in Grainger City, Newcastle, UK. Contingent valuation. (Chapter 4)	16-22	Household, annual, OE, tax	16-22	47%	n.a.
Recreational value of aboriginal rock paintings, Nopiming Park, Canada. Contingent valuation (Chapter 8)	134	Individual, annual, CB, travel cost	134	n.a.	n.a.
Valuing the right to access two Italian art museums at present charges. Contingent valuation. (Chapter 12)	28-33	Individual, annual, SB DC, donation	28-33	18% (approx.)	n.a.
Valuing visitor benefits to Warkworth Castle. UK. Contingent valuation. (Chapter 4)	4	Individual, per visit, OE, fee	4 (average no. of visits = 1)	n.a.	0.01
Value of continuing current activities of the Royal Theatre in Copenhagen. Contingent valuation. (Chapter 13)	9-24	Individual, annual, OE, tax	9-24	18%	n.a.
Maintaining the Napoli Musei Aperti. Contingent Valuation (Chapter 14)	11 (users) 4 (non users)	Household, annual OE donation	11 4	34% (users) 67% (non-users)	n.a.
Damages from air pollution on the Nidaros Cathedral, Norway. Contingent valuation. (Chapter 3)	51: originality preserved 45: restoration - losing originality	Individual, annual, OE, tax and donation	51 45	9-20 % (domestic visitors) 38-49 % (foreign visitors)	n.a.
Damages from traffic-caused air pollution on historical buildings in Neuchatel,	77-86	Individual, annual, BG, donation	77-86	43%	n.a.

Study and nature of the asset	WTP (US\$) ¹	WTP definition ²	Annuity (US\$) ³	% zero WTP	% of stated income ⁴
Switzerland. Contingent valuation. Grosclaude and Soguel, 1994 - A					
Arts support (theatre, opera, ballet, music, visual arts, crafts), Sydney, Australia. Contingent valuation. Throsby and Withers, 1986 -B	18-111	Individual, annual, OE, tax	18-111	n.a.	n.a.
Prehistoric cave paintings preservation programs (two hypothetical new caves discovery in Peak District, U.K). Contingent Valuation Coulton 1999- C	1 (two caves open to public, none exist in 50 years) 14 (one cave open to public, one cave protected and exist in 50 years)	Individual, One time, OE tax	0-1	85 % 29 %	0-0.00003
Restoring historic core of the city of Split, Croatia, Contingent Valuation Pagiola 1999 - D	44 (domestic and foreign tourists) 168 (local residents)	Individual, per visit Individual, annual DB DC, tax	n.a. 168	n.a. n.a.	n.a
Machu Picchu, * Peru. Contingent valuation. Hett and Mourato, 2000 - E	47 (foreign tourists) 26 (Peruvians)	Individual, per visit, PC entry fee	47 26	n.a	0.07 0.26
Picture library, UK. Contingent valuation. EFTEC, 2000 - F	12	Individual, annual PC	12	10%	n.a
History (recorded heritage) centre. .Contingent Valuation, EFTEC, 2000 - G	34 (users, loss of access, but collection protected) 48 (users, loss of access and collection) 18 (non-users, loss of access and loss of collection)	Individual, annual PC	34 48 18	n.a	n.a
Preservation of the St. Genevieve Academy. Contingent Valuation Whitehead et al, 1998 - H	5-6	Household, one-time PC donation	0.3-0.36	61%	0.001

Study and nature of the asset	WTP (US\$) ¹	WTP definition ²	Annuity (US\$) ³	% zero WTP	% of stated income ⁴
Preservation of the Northern Hotel in Fort Collins Contingent Valuation. Kling et al, 2000 – I	86 (tax, low information) 126 (tax, high information) 195 (foregone rebate, low information) 434 (foregone rebate, low information)	Household, one-time DC	5 8 12 26	n.a.	n.a.
Congestion in the British Museum., Conjoint Analysis Maddison and Foster, 2001 - J	9 (marginal congestion cost per visitor)	Individual Per visit CA entry fee	n.a.	n.a.	0.01
Restoring Stone Town *, Zanzibar Contingent Valuation. Bølling and Iversen, 1999 – K	20 (tourists)	Individual Per visit OE / SB DC arrival fee	n.a.	n.a.	n.a.
Rehabilitating Colon Theatre, Buenos Aires, Argentina Conjoint Analysis Roche Rivera (1998) - L	58 (Local residents)	Individual, Annual SB DC tax	58	n.a.	n.a.

Source: Based partly on Pearce and Mourato (1999) and Pearce, Maddison and Pollicino (2001)

Notes: * Is or includes a site listed in the UNESCO's World Heritage List; n.a. = data not available 1 Using average exchange rates for the year of the study; 2 Individual or household; periodicity; elicitation format (OE: open-ended; PC: payment card; BG: bidding game; SB DC: single-bounded dichotomous choice; DB DC: double-bounded dichotomous choice; CA: conjoint analysis; CB: contingent behaviour); payment vehicle (tax, donation, entry fee, arrival fee, travel cost); 3 Estimated annuities were calculated for a time horizon of 50 years using a discount rate of 6%; 4 Gross annual household returns

Table 15.2. Cultural heritage studies classification. Studies that fit in two categories are listed in both. The number or letter assigned to each study refers to table 15.1. Studies marked with * is or includes a site listed in the UNESCO's World Heritage List.

Type of Benefit	Type of Good				
	Single building	Group of buildings	Monuments	Archaeological areas and artefacts	Other
Protect from air pollution damages	5 - Lincoln Cathedral 3 - Nidaros Cathedral	A – Historical buildings in Neuchatel	11 - Washington D.C Monuments		
Restore or preserve from degradation	3 - Nidaros Cathedral 5 - Lincoln Cathedral H – Northern Hotel, Fort Collins	6 - Bulgarian Monasteries* 9, M - Fes Medina* 4 - Grainger City D - Historic Core of Split E- Machu Picchu* K – Stone Town of Zanizibar*		C – Prehistoric cave paintings in UK	L- Colon Theatre
Protect from urban development/ infrastructure				7 – Stonehenge 10 – Campi Flegrei Archaeological Park	
Gain access	4 – Warkworth Castle 4- Durham Cathedral			8 –Rock Paintings, Nopiming Park C – Prehistoric cave paintings in UK	12 – Art galleries in Turin
Maintain at present level	I – St. Genevieve Academy				13- Royal Theatre, Copenhagen 14 – Napoli Museui Aperti B –Performing and visual arts in Sydney F- Picture library, UK G-History (recorded heritage) Centre, UK
Reduction of congestion					J - British Museum

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