The Economic Value of Culture: A Benefit Transfer Study

Executive Summary

Report to the Department for Digital, Culture, Media & Sport

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Executive Summary

The cultural sector is of value to those who use its services (such as visitors to a cultural institution, students who benefit from its education programmes or beneficiaries of its community outreach) and to society more generally, even those who do not directly use it (non-users). The latter includes those who place value on preserving the institution for future generations as well as those who place intrinsic value in it. This broader definition of economic value aligns with the concept of value used in cost-benefit analysis (CBA), the standard evaluation methodology used in UK policymaking (HM Treasury Green Book).

However, measuring this economic value can be challenging. Monetary valuations are straightforward when people pay for goods and services, but when access to a cultural facility is free and/or where individuals value an institution but don't visit it, the value they derive is not directly observed.

In England, many cultural institutions receive public support, so it is important to assess their value for money to taxpayers. This necessitates estimating both their use value and non-use value. In Bakhshi et. al. (2015), we demonstrated in the case of two premier cultural institutions how, when primary data can be collected, economic valuation techniques can be used for this purpose.[1] Building on that research, the aim of the present study is to test whether economic values for cultural sites can be transferred to similar sites in England without the need for costly primary data collection, through a technique called *benefit transfer*.

Specifically, we combine contingent valuation methods to elicit values for four regional museums in England, using the best practice survey procedures proposed in our earlier study, and informed by the methods applied in a recent EU-wide benefit transfer study[2]. Contingent valuation is an established approach which is recognised by HM Treasury as a robust method for assessing the value of non-market goods and services (HM Treasury 2011). [3] In this approach, people who use the good or service (in this case a museum) are asked their willingness to pay (WTP) to continue using the museum, and those in the general populace who do not use it are asked their WTP to support its continued public presence.

We collect WTP estimates from individuals who have visited at least one of the four museums in our study: the **World Museum in Liverpool**, the **Ashmolean Museum in Oxford**, the **National Railway Museum in York**, and the **Great North Museum in Newcastle**. These institutions are selected on the basis of a scoping study and with the agreement of the Department for Culture, Media and Sport according to the following criteria. The study sites should: (i) be regional museums providing a representative geographical spread across England; (ii) have collections of national importance; (iii) be

[1] Bakhshi, H., Fujiwara, D., Lawton, R. N., Mourato, S., & Dolan, P. (2015). *Measuring Economic Value in Cultural Institutions,* UK: Arts and Humanities Research Council.
[2] Mourato, S., Fimereli, E., Contu, D., Gaskell, C., & Boniatti-Pavese, C. (2014). *The Economic Benefits of Cultural Built Heritage Interiors Conservation from Climate Change Damages in Europe* (No. WP6 Final Report) (p. 94). London, UK: Grantham Research Institute on Climate Change and the Environment.
[3] HM Treasury. (2011). *The Green Book: Appraisal and Evaluation in Central Government* (pp. 1–114). HM Treasury.

free to enter; (iv) not be subject to large-scale refurbishment within the study timescale of 3 years, and (v) receive a substantial number of annual visits.

Transfer test guidelines are applied[4] to assess the validity of our benefit transfer model by taking the estimated WTP values of each of the four sites and comparing them with the average values derived from the remaining three sites in the study (i.e. the 'study site' composed of the other three museums). We compare both simple means in WTP and means adjusted for differences in the socio-demographic (and other) make-up of user and non-user groups across the sites. This provides an estimate of the *transfer error* that would occur when transferring these values to other museums for which WTP values are not available, and from this we can assess the validity of our benefit transfer model.

We confirm the findings in Bakhshi et. al. (2015) that contingent valuation delivers plausible estimates of use and non-use value for museums, whereby the WTP values vary with observed individual socio-demographic (and other) characteristics in a way that is consistent with economic theory. We also demonstrate the validity of our benefit transfer model. For the four museums in our study, the average 'transfer error' is lower than the threshold for validity generally suggested in the literature.

For the transfer of use values, errors are comparable across all of the three methods tested.[5] For transfer of non-use values, the non-user population is constant i.e. we use the same sample of the national population when investigating non-use values. Under these circumstances, the socio-demographic factors on which the mean WTPs are typically adjusted (e.g. age, gender, income) are identical and, as such, it is only possible to compare simple averages for the transfer of non-use values across institutions. We find that doing this gives rise to larger errors for non-use values than for use values, but that the errors still fall within an acceptable error range.

How the research was undertaken

The valuation estimates are collected through a novel online survey design of museum visitors (defined as people who have visited the relevant museum in the past three years) and wider members of the public who have not visited the museums in the past three years (non-users). The survey is designed to maximise the number of institutions that can be valued within a single online survey instrument. Our approach, therefore, represents a cost-effective way of collecting primary data while implementing best practice in stated preference survey design. Socio-demographic information on survey participants and background information on their attitudes to culture and participation are also obtained in order to validate the WTP values against economic theory and to use in the benefit transfer models. We sample English residents aged 16 and over.

Estimates of **use value** are obtained from survey respondents who have visited at least one of the museums in the past three years. These **museum visitors** are asked to consider a hypothetical scenario where funding cuts to that museum mean that they

[4] Johnston, R., Rolfe, J., Rosenberger, R. S., & Brouwer, R. (2015). *Benefit Transfer of Environmental and Resource Values - A Guide for Researchers and Practitioners*. London, UK: Springer.

[5] Acceptable transfer errors are set around 20—40%: Morrison, M., & Bergland, O. (2006). Prospects for the use of choice modelling for benefit transfer. *Ecological Economics*, *60*(2), 420–428

would have to pay an **entry fee** to visit the museum, and to state the amount they would be willing to pay in such a situation.

Estimates of **non-use values** are obtained from survey respondents who have not visited the museum in question. **Non-visitors** are asked to consider a hypothetical scenario where funding cuts mean that alternative ways of funding the museum and its collections need to be found. In such an eventuality, they are asked to say how much they would be willing to pay as an **annual donation** to preserve the institution to ensure the collections are adequately conserved, maintained and presented in the best possible way.

The use values obtained from the survey are **weighted** to reflect the known characteristics of the museum's visitors (based on visitor breakdown by gender and age provided by the four institutions). The non-use values are weighted by the characteristics of the general population (using age and gender breakdowns from the Office for National Statistics) to ensure that they are representative of the English population as a whole.

It is well known that stated preference survey data collection, such as ours, can induce a number of **potential biases**.[6] In particular, the hypothetical nature of the survey means that respondents may provide unrealistic or inaccurate answers, or responses that are influenced by the order in which questions are asked. To help address this, we employ several strategies, such as the use of follow-up questions to check the consistency of previous answers, and randomising the order of survey questions. Formal tests for potential biases are also undertaken on the data collected, and biases are not found to significantly affect WTP values.

To assess the extent to which the estimated values are transferrable across sites we can use three methods:[7]

i) *Simple unit transfer*, which involves transferring the average WTP from three of the museums (the pooled 'study sites') to the remaining museum (the 'policy site');
ii) *Adjusted unit transfer*, where the average WTP from the pooled study sites is adjusted for income differences between the policy and study sites, and
iii) *Function transfer,* where the average WTP at the pooled study sites is further adjusted for a richer set of socio-demographic variables and other measured differences between users and non-user groups.

[6] Carson, R. T. (2012). Contingent valuation: a practical alternative when prices aren't available. *Journal of Economic Perspectives*, *26*(4), 27–42; Champ, P. A., & Bishop, R. C. (2001). Donation payment mechanisms and contingent valuation: an empirical study of hypothetical bias. *Environmental and Resource Economics*, *19*(4), 383–402

[7] See Mourato, S., Fimereli, E., Contu, D., Gaskell, C., & Boniatti-Pavese, C. (2014). The Economic Benefits of Cultural Built Heritage Interiors Conservation from Climate Change Damages in Europe (No. WP6 Final Report) (p. 94). London, UK: Grantham Research Institute on Climate Change and the Environment; Johnston, R., Rolfe, J., Rosenberger, R. S., & Brouwer, R. (2015). Benefit Transfer of Environmental and Resource Values - A Guide for Researchers and Practitioners. London, UK: Springer. http://www.springer.com/gb/book/9789401799294. Accessed 26 April 2017

Museum valuation estimates

Here, we report the average use and non-use values elicited from visitors and non-visitors to each of the four museums.

Table 1 shows the average use value and non-use values as measured by the WTP for the four museums. Average use values for museum visitors range from £6.01 (World Museum) to £7.79 (Great North). Non-use values are lower, ranging from £2.79 (Great North Museum) to £4.06 (Ashmolean). The estimated use values are broadly in line with fees charged by similar institutions in England which have paid ticketed entry and the estimated non-use values seem plausible when compared with previous studies e.g. Bakhshi et al. (2015).

Table 1 Museum visitor use values and non-use values measured by average Willingness to Pay

	Great North Museum, Tyne & Wear	World Museum, Liverpool	National Railway Museum, York	Ashmolean Museum, Oxford
Average use value Willingness to Pay (entry fee)	£7.79	£6.01	£6.86	£7.08
Total observations (museum visitors)	264	282	397	252
Average non-use Willingness to Pay (annual donation)	£2.79	£3.70	£3.30	£4.06
Total observations (museum non-visitors)	390	384	352	418

Validity analysis: factors affecting use and non-use values

We assess the validity of the valuation estimates using simple econometric analysis. Theory suggests that higher values should be associated with certain demographic characteristics (especially income), attitudes to culture and prior usage of the institution being valued[8]:

[8] Bateman, I. J., Carson, R. T., Day, B., Hanemann, M., Hanley, N., Hett, T., et al. (2002). *Economic Valuation with Stated Preference Techniques: A Manual*. Cheltenham, UK: Edward Elgar.

Factors associated with higher use values

+ **Income:** There is in general a positive and statistically significant association between incomes and use values, controlling for other factors.
+ **Resident of city:** There is in general a positive association between local residents and higher use values, controlling for other factors. This association is statistically significant for the Great North (Tyne & Wear) and National Railway Museum (York).
+ **Distance to museum:** There is a positive and significant association between distance travelled to visit the museum and higher use values, controlling for other factors, including residence of the city. This suggests that visitors are revealing their value through their preferences of how far they are willing to travel to use the institution.
+ **Cultural engagement:** Being very, or extremely, familiar with information on the museum and being a member of a cultural, conservation, environmental or other organisation is also in general positively and significantly associated with higher use values, controlling for other factors.

Factors associated with higher non-use values

+ **Income:** There is in general a positive and statistically significant association between higher incomes and higher non-use values, controlling for other factors.
+ **Cultural engagement:** Being very, or extremely, familiar with information on the museum is in general positively and significantly associated with higher non-use values, controlling for other factors.
+ **Attitudes to culture:** Estimated non-use values are in general significantly higher for people who believe that arts, culture and heritage are a fiscal priority.

In sum, the validity analysis shows that the WTP values are associated with theoretically consistent drivers, giving extra confidence in their potential transferability to other sites.

Benefit transfer

Table 2 shows that the results strongly support the transferability of both our use and non-use values across the four sites. The benefit transfer literature suggests that an acceptable transfer error – the % difference between study site and policy site – is around 40%.[9]

When we compare the three different methods used to calculate the transfer error, we find comparable results for the mean and maximum transfer errors for museum visitor use WTP.

Based on this finding, we recommend that policymakers choose which transfer approach to apply to the transfer of use values to museum visitor populations, depending on data availability and contextual factors, as outlined below.

- The *simple unit transfer method:* Suitable for transferring use WTP values from the four museums we study to policy sites which are sufficiently similar in museum characteristics and visitor demographics.

[9] Ready, R., & Navrud, S. (2006). International benefit transfer: Methods and validity tests. Ecological economics, 60(2), 429–434.

- *Adjusted unit transfer:* produces similarly low transfer errors, and requires less data (only the income differential between study and policy sites).
- Transfer of *benefit functions:* We find that significant factors in the benefit function for use WTP values are the income and age of the visitors, and the distance visitors are willing to travel. Where this data is available, policy analysts may prefer to adopt the function transfer approach.

Overall, the relatively low transfer errors identified across all the use value transfer tests suggests that sensible scoping and prior selection of sites with similar characteristics within the set of study sites can improve transfer errors for WTP values, meaning that the simple and adjusted unit transfer approaches perform equally well as the more complex function transfer approaches. For non-use values, where we can use only simple unit transfer, the transfer errors are also within an acceptable range. (More generally, it is still possible for analysts to adjust these non-use values for the purposes of transfer when there are differences among non-user populations – for example, when there are differences in average income between the nation and a particular region).

Taking the results together, we conclude that value estimates in any one valuation scenario and elicited in any one institution must always be used with great care when applied to other cases. Our recommendation is that practitioners perform an **in-depth scoping of potential policy sites** (using the scoping criteria outlined in the main report) before embarking on any benefit transfer, and follow the recommendations and data requirements we set out when making their choice of benefit transfer method.

Table 2 Transfer errors (mean and max) recorded for each transfer method

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum	Mean Transfer Error	Max Transfer Error
Museum visitor use value WTP (entry fee)						
i)Simple transfer	15.8%	18.2%	0.3%	3.8%	9.5%	18.2%
ii)Adjusted for income	17.9%	12.4%	0.2%	6.8%	9.3%	17.9%
iii)Function transfer	17.7%	16.7%	2.4%	4.2%	10.2%	17.7%
Museum non-visitor non-use value WTP (annual donation)						
i) Simple transfer	32.8%	8.0%	6.9%	19.7%	16.8%	32.8%

Table 3 summarises the WTP values elicited from museum visitors and museum non-visitors by pooling all four museum-level valuations and computing the average WTP across all four study sites.

- **Museum visitors (use value): Mean entry fee WTP = £6.42**
- **Non-visitors (non-use value): Mean annual donation WTP = £3.48**

Table 3 Use and non-use Willingness To Pay for benefit transfer: average WTP value across four study sites.

	Pooled Museum Visitor WTP Entry fee	**Pooled Non-visitor WTP annual donation**
95% CI low	£5.96	£3.12
Mean	£6.42	£3.48
95% CI high	£6.89	£3.83
Sample (No. of visitors)	1195	1544