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Use value of cultural experiences: A comparison of contingent valuation and travel cost

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HIGHLIGHTS

- CVM and TCM are applied to assess the value of cultural experiences.
- Experiences consist of core cultural experiences and of other valuable experiences.
- TCM is an inappropriate measure if the total experience consists of multiple experiences.
- CVM allows measures of the core cultural experience and other experiences separately.

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ABSTRACT

Few applications to assess the value of cultural experiences exist. This is particularly frustrating for cultural institutions, as it provides them with few opportunities to reveal their importance in terms of attractiveness and thus what drives tourism demand. This study applies the travel cost method (TCM) and contingent valuation method (CVM) to assess the value of two rural cultural institutions in order to compare the results of the valuation methods.

The results reveal that visitor experiences consist of a core cultural experience as well as other valuable experiences before and after. Whereas CVM allows for a valuation of the core cultural experience separately from other experiences, the TCM is limited to an overall assessment. The TCM is therefore an inappropriate measure of the value of the cultural experiences when the total experience includes several other experiences.

If visitors travel for the sake of only one cultural experience, TCM may be preferable due to its simple applicability and cost efficiency. If, however, as is most often the case, a cultural experience is part of a bundle of experiences, the application of CVM is recommendable. This is also the case, if only visitors who state the cultural experience to be the primary reason for travelling are included.

1. Introduction

For tourists, the value of experiences is the foremost motivation for travelling. Cultural experiences, in particular, attract an ever larger share of tourists. While measures for understanding the artistic significance of arts and culture exist, these measures may not necessarily uncover the experiential value for consumers. Neither does the market in which cultural experiences are traded work efficiently (Throsby, 2003). Lacking more sophisticated measurements of experiential value, assessments of experiences have therefore mainly remained an exercise in counting visitor numbers, without really understanding the value of what is created. This is particularly frustrating for cultural institutions, as it provides them with few opportunities to reveal their importance in terms of attractiveness and thus what drives tourism demand.

In this article, non-market valuation techniques, separable into revealed and stated preference techniques, are considered as means of assessing the value of experiences (Choi, 2009; Navrud & Ready, 2002; Noonan, 2003; Throsby, 2003). Stated preference techniques are criticised as being unreliable, due to their hypothetical scenarios, and as leading to biases and errors in the estimates. However, it may be claimed that, if applied carefully, stated preference techniques produce valid and reliable results (Arrow et al., 1993). While stated preference techniques are hypothetical, revealed preference techniques assess the value through actual behaviour, such as the cost of travelling.

Previous research results are ambiguous with regard to the extent that these two techniques generate similar results. Carson, Flores, Martin, and Wright (1996) found that a contingent

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valuation method (CVM) may yield smaller estimates, though not grossly smaller estimates in environmental settings. Clarke (2002), on the other hand, concluded in a health care setting that the stated preference method generated larger estimates than a revealed preference technique.

From a tourism management perspective, the choice of a non-market valuation technique may affect the results and the relevance of the results, as well as the costs of the valuation. The aim of this study is to compare the two techniques in a cultural setting. The research question is: *Do contingent valuation and travel cost method produce the same or at least similar measures of use values?* The purpose is to measure and compare the estimated use values at two cultural institutions, and discuss possible differences.

2. Study sites

Two cultural institutions were studied. 'Vara Konserthus' is a concert hall located in the centre of the province of Västra Götaland, in a rural area. On average, 35,000 people visit the 100–150 performances annually. The average entrance fee to the concert hall is €15.

The Nordic Watercolour Museum is located on the west coast of Sweden and hosts exhibitions from Nordic and international artists. Between 150,000 and 230,000 people visit the museum annually. The location of the museum, on an island in the archipelago, offers visitors the opportunity to visit nearby fishing villages, unspoiled nature and the coastline. The entrance fee for a one-time visit to the museum is €6.30, which is equivalent to the cost for a season ticket.

Both institutions are physically well defined and located relatively far from major towns, making it easier to draw conclusions about their attractiveness. The institutions, however, differ in terms of the motivations for their existence. In Vara, the municipal executive board decided to invest in culture as a strategy for improving quality of life for local residents. On Tjörn, the initiative was taken by the Nordic Watercolour Society, who aimed to create a centre for Nordic watercolour art, work, research and teaching. Another difference is that the Watercolour Museum is relatively specialised in what it offers, which results in less breadth but greater depth, while Vara Concert Hall offers a broad range of performances.

3. Economic methods to measure value

Since its application to the oil spill caused by the Exxon Valdez, CVM has been a preferred method within environmental and, more recently, also cultural settings (Arrow et al., 1993; Carson et al., 1992; Noonan, 2003). Revealed preference methods, particularly the travel cost method, have also received increasing attention (Alberini & Longo, 2006; Bedate, Herrero, & Sanz, 2004; Herrero, Sanz, Devesa, Bedate, & del Barrio, 2006; Sanz, Herrero, & Bedate, 2003).

3.1. Contingent valuation method

The CVM assesses individuals' willingness-to-pay for a specific scenario (Mitchell & Carson, 1989). The underlying assumption is that individuals have preferences that can be elicited by creating a hypothetical market (Mmopelwa, Kgathi, & Molefhe, 2007), and that conclusions can be drawn about how the utility of a product or service is perceived by individuals.

Measuring willingness-to-pay requires value statements from respondents, usually elicited through face-to-face interviews and mail/telephone surveys (Garrod & Willis, 2001). Surveys use open-ended questions, dichotomous choice questions, bidding games or choice modelling. Open-ended questions give respondents an opportunity to state their maximum willingness-to-pay amount freely, while dichotomous choice offers respondents predefined bids which the respondent may accept or reject. Bidding games offer ever increasing or decreasing willingness-to-pay amounts, until an amount is accepted (Mitchell & Carson, 1989).

Throsby and Withers (1983) were pioneers of using willingness-to-pay in cultural economics. Since then assessments have been carried out in settings such as historic sites (Rolfe & Windle, 2003), theatres (Bille Hansen, 1997), monuments and landmarks (Kling, Revier, & Sable, 2004; Powe & Willis, 1996), broadcasting (Schwer & Daneshvary, 1995), world heritage sites (Del Saz Salazar & Montagud Marques, 2005; Kim, Wong, & Cho, 2007; Maddison & Mourato, 2001; Tuan & Navrud, 2008), museums (Bedate, Herrero, & Sanz, 2009) and festivals (Andersson, Armbrecht, & Lundberg, 2012; Andersson & Lundberg, 2013; Snowball, 2005).

Despite its popularity, the method is disputed, being based on hypothetical and not actual behaviour, which leads to biases affecting its reliability and validity (Arrow et al., 1993; Bedate et al., 2009). The endorsement and guidelines proposed by the National Oceanic and Atmospheric Administration have contributed to methodological refinements in support of the method (Mmopelwa et al., 2007).

This study elicits willingness-to-pay using open-ended questions. The format involves asking: what is the maximum amount that individuals are willing to pay for a product. A recurring problem with the open-ended format is that it tends to yield relatively large numbers of non-responses and protest bids, as respondents find it difficult to put a monetary value on goods without any guidelines (Mitchell & Carson, 1989). Furthermore, Hanemann (1994) argues that open-ended questions may lead to strategic behaviour and incorrect valuations.

Desvousges et al. (1993) used open-ended as well as dichotomous choice techniques to assess the value of preventing oil spills. The results did not differ significantly. Furthermore, open questions are regarded as advantageous as they are easier to administer and do not lead to starting point biases (Walsh, Loomis, & Gillman, 1984). The approach is efficient in that it is likely to result in more conservative estimates than, for instance, the bidding game approach (Kriström, 1988; Walsh et al., 1984). The open-ended format is also preferable in that it provides more information about individuals' preferences, in comparison with a dichotomous layout (Mitchell & Carson, 1989).

Values elicited with other methods than open ended tend to be larger (Carson et al., 1996). This phenomenon is attributed to factors such as (a) strategic bias (especially understatement) in open-ended formats; (b) 'yea-saying', in the case of a dichotomous format; and (c) the tendency of respondents to provide a lower value when confronted with a difficult open-ended question (Venkatachalam, 2004). Mitchell and Carson (1989) state that the open-ended method is suitable in situations where respondents are familiar with paying for the product under consideration. In this study all respondents pay for their experiences and can be assumed to be familiar with the product or service under consideration.

3.2. Travel cost method

Travel cost method (TCM) assumes that the travel costs represent the *price* visitors have to pay to obtain access to a site(Fleming & Cook, 2008). Therefore, TCM uses the cost of travelling as a proxy for inferring the benefits provided by a resource (Driml, 2002). The method is based on the assumption that the price paid to access a cultural institution increases with increasing distance (Hotelling, 1947). A key concept in the TCM is the visitation rate, reflecting the number of visits in relation to the population. The increase in distance and travel costs results in the visitation rate falling, the

Table 1
Summary of samples and response rates. The table describes the population and stages of the data collection process. The response rate refers to the relationship between responses and the number of individuals approached.

Sample number	Population	Individuals approached	Not interested in participation	Did not return contact info.	Incorrect/unreadable e-mail addresses	Non-response	Answers	Response rate
	a	b	c	d	e	f	g (b – c – d – e – f)	(g/b)
1	Visitors to Vara Concert Hall (≈35,000 in 2009)	1098	150	140	125	100	583	**53.1%**
2	Visitors to Nordic Watercolour Museum (≈150,000 in 2009)	1047	188	351	0	94	414	**39.5%**

farther people live from the attraction. The method constitutes an indirect, so-called Clawson–Knetsch method (Cesario, 1976), and measures individuals' consumer surplus (Garrod & Willis, 2001; Hanley & Barbier, 2009; Tietenberg & Lewis, 2008).

As with stated preference methods, revealed preference methods have been developed in environmental economics (Poor & Smith, 2004). Lately, the travel cost technique has gained popularity, particularly in the context of cultural heritage (Alberini & Longo, 2006; Bedate et al., 2004; Fleming & Cook, 2008; Mayor, Scott, & Tol, 2007; Ruijgrok, 2006).

Two types of travel cost models exist: the individual (ITCM) and the zonal travel cost (ZTCM) method. The former method uses the number of visits per year as dependent variable. The latter method uses the number of trips to a site, relative to the population of a particular zone, as the dependent variable. The ITCM is applicable for local, frequently visited sites, whereas the zonal method is appropriate for sites visited infrequently (Fleming & Cook, 2008). To apply the ZTCM successfully, travel costs from zones farther away from the destination should be higher, which results in lower visitation rates (Dharmaratne & Brathwaite, 1998). For the chosen objects of study, the number of exhibitions and concerts is limited. Visitors therefore tend to visit these cultural institutions only once or twice per year. Consequently, the demand for experiences is naturally truncated, supporting the use of ZTCM in this study.

4. Study design

The sample, data collection method and survey questions are presented below. A description of the contingent valuation and travel cost questions, as well as their specification, is presented in the following sections.

4.1. Sampling procedure and the sample

The study consists of two samples, one for each cultural institution. All respondents were at least 16 years old and were selected randomly at entrance doors or at ticket sale/exchange points. Starting at a certain time of the day, every third person passing through the entrance doors or standing closest to the ticket sale/exchange points was asked to participate. After each interview the next third person was approached. Respondents who were interested in participating were asked to give their e-mail address, postal address or telephone number.

Two or three days after the recruitment process, an e-mail containing a link to the web-based questionnaire (constructed in *Webropol*) was sent to the respondent. For both samples, two reminders were sent out. On receiving the e-mail and the link to the web questionnaire, respondents were first asked to read a set of general instructions concerning the aim and purpose of the study. Thereafter, the respondent went on to answer the questions, which were automatically stored in a database.

Only a few respondents chose to be contacted by mail or phone. On request, respondents were sent a printed version of the questionnaire. Telephone interviews were held at the respondent's convenience.

Table 1 provides information on (a) the size of the population, (b) the number of individuals approached, and (c) the number of individuals not interested in participating. For those who expressed an interest, some did not hand back their contact information (d), and some did not receive the questionnaire due to readability/spelling errors in their e-mail addresses (e). A further group of respondents chose not to answer, despite reminders (f). The number of answers for each study is presented in column (g). The last column presents response rates calculated as (g/b).

Out of 583 surveys at the concert hall, 474 were web based, 99 were conducted by mail and 10 by phone. There is no statistical difference between the data from the web survey and from alternative modes. For the museum, 381 respondents chose the web survey, 25 respondents chose to be contacted by mail and 8 by phone. Due to the small number of cases, no statistical analysis of differences was made in this case.

As shown in Table 2, there were slightly more female than male respondents for both surveys. The mean age and educational level of respondents is higher than the average for the population in the municipalities and the region.

Most visitors to the museum and the concert hall who were sampled were in a registered partnership or were married. The respondents' mean age was 55 (museum) and 59 (concert hall) respectively. The relatively high mean age is explained partly by the exclusion of respondents under the age of 16. The mean age in west Sweden for residents older than 16 is 56 years.[1] Most respondents at both cultural institutions were non-local visitors.

4.2. Travel distances

For calculating travel costs, the area surrounding the objects of study was divided into concentric circles (zones), based on postcode areas. For the concert hall, each circle represents an increase in mean travel distance to the concert hall (one way) of approximately 20 km, starting at a distance of 10 km (circle 1: 10 km, circle 2: 30 km, circle 3: 50 km and so on to circle 8: more than 130 km).

For the museum, larger metropolitan areas affected the size of the circles. To obtain acceptable distributions of zonal populations, circle distances (one way) to the museum were drawn roughly as follows: circle 1: 10 km; circle 2: 30 km; circle 3: 60 km; circle 4: 90 km; circle 5: 110 km; circle 6: 130 km; circle 7: more than 130 km. A provisional outline of the geographical location of the circles is presented in Fig. 1.

4.3. Multi-purpose trips

One problem when applying TCM is the fact that trips may not be attributable to one but several reasons. The difficulty lies in

[1] www.scb.se.

Table 2
Respondent characteristics for each study object.

Sample	Population	Gender		Average age	Median income	Education	
		Female	Male			Sec school	University
1	Visitors to Vara Concert Hall	53.4%	46.6%	59 years	€24,700	23%	45%
2	Visitors to Nordic Watercolour Museum	57%	43%	55 years	€27,600	16%	72%

determining what part of the cost should be assigned to a specific site. According to Bedate et al. (2004) this problem may be solved by using the cost of travel from the stop prior to the site in question (Smith, 1971); assigning a part of the total cost to each of the destinations and calculating a demand function for each (Haspel & Johnson, 1982); distributing costs according to the time that each visitor spends at each of the sites; or redefining the site of the visit as the set of sites in the multi-purpose visit (Mendelsohn, Hof, Peterson, & Johnson, 1992). None of these suggestions is convincing, however, since all may lead to a situation where persons living close to a site pay more than those who live farther away but who made multi-purpose trips. This would contradict the principle that demand and price are inversely related (Bedate et al., 2004). Therefore, only respondents whose primary travel motivation was one of the cultural institutions were included in this study.

4.4. Willingness-to-pay questions

As recommended by the NOAA panel (Arrow et al., 1993), actions were taken to minimise bias. The respondents were first asked if the value of the experience was higher or lower than the entrance fee. Respondents were then given an introduction to the object of the study, and an explanation of the willingness-to-pay question and the open-ended format. They were also made aware of their restricted budget. Thereafter, the payment vehicle, the entrance fee, was introduced. The last part of the question elicited the maximum willingness-to-pay for the experience. The willingness-to-pay question for the cultural experience (direct use value) was formulated as follows:

> *Disregarding what you actually paid for your ticket for the performance/exhibition, what is the maximum amount you would be willing to pay for the experience at the performance/exhibition and still think you got value for money?*

In addition to direct use value, the study aimed to estimate the value of other experiences before and after the core cultural experience. Therefore, the following question was asked:

> *Disregarding what you actually paid for the trip to the cultural institution (museum/concert hall), what is the maximum amount you would be willing to pay for the whole experience and still think you got value for money? (Think of the whole experience, from leaving your place of abode until returning home.)*

Respondents could answer the questions either by revealing their willingness-to-pay, or by answering, “I don’t know”.

4.5. Travel costs questions

First, the respondents had to state whether they travelled by car or used another form of transport. If no car was used, type, duration

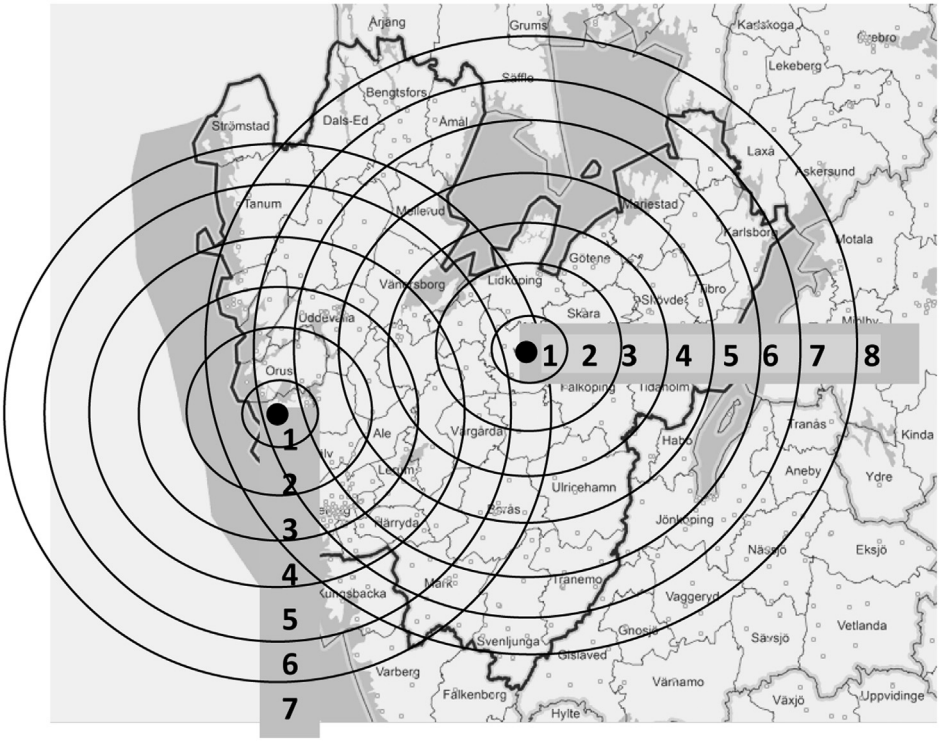

Fig. 1. An approximate outline of the zones used for the analysis.

Table 3
Use values calculated as averages for each cultural institution.

		CVM direct	CVM total
Concert hall	Locals	€43.10	€58.80
	Non-locals	€38.00	€56.40
Museum	Locals	€9.20	€32.30
	Non-locals	€10.10	€42.30

Table 4
Aggregated willingness-to-pay using CVM.

		CVM direct	CVM total
Concert hall	Locals	€288,770	€393,960
	Non-locals	€1,056,400	€1,567,920
	Total	**€1,334,170**	**€1,961,150**
Museum	Locals	€354,200	€1,243,550
	Non-locals	€1,126,150	€4,716,450
	Total	**€1,480,350**	**€5,960,000**

Aggregated values are based on mean values and number of visits.

and costs of transport were requested. The questions relating to the travel costs were:

- *Where do you live (please enter your postcode)?*
- *How often have you visited the Nordic Watercolour Museum/Vara Concert Hall during the last 12 months?*
- *How many persons travelled in the same vehicle as you and belonged to your party?*
- *If you do not live in Tjörn/Vara, was the museum/concert hall the primary reason for your trip?*

On the basis of the question 1, the return travel distance, travel time and cost are calculated. Question 2 concerns the number of visits and was calculated as visits per year. Question 3 allows for the calculation of travel costs per person, and the last question was posed in order to separate visitors whose primary reason for travelling was to visit the cultural institution, from other visitors.

5. Estimates based on the contingent valuation method

In the estimates, 'Locals' refers to respondents who live within the municipality where the cultural institution is situated, whereas 'non-locals' refers to respondents who live outside the municipality. Direct use value, as measured by the CVM (CVM direct), refers to the core cultural experience, i.e. the value of experiencing art exhibitions or performances.

The CVM total includes CVM direct and the value of other experiences before and after, such as travelling, dining, socialising, going for a walk, having a drink, etc. A small proportion of the sample stated €0. While different from many other CVM studies, this is not surprising since most visitors paid for their experiences. Protest bids clustering at €0 are thus not regarded a problem. The distance between the WTP values can approximately be described as logarithmic.[2] The higher the stated value, the higher the distance to the next value. This distribution is not surprising as individuals may not know their preferences exactly, i.e. whether they are willing to pay €9.75 or €10.20. The average WTP is presented in Table 3. The mean is calculated as average willingness-to-pay per visitor.

Whereas the concert hall is located in a rural area with very few extra activities and experiences to offer, the museum is located in an environment offering plenty of additional experiences. Its proximity to the sea and archipelago, to old fishing villages and to other cultural sites offer opportunities for several other experiences. Other significant providers of experience are nearby cafés and restaurants.

Mean values are aggregated for local and non-local visitors (concert hall: 6700 locals and 27,800 non-locals; museum: 38,500 locals and 111,500 non-locals) (Table 4).

For both the museum and the concert hall, non-locals benefit significantly more in terms of use values. With regard to CVM direct, the value created by the concert hall is similar to that created by the museum. However, CVM total for the museum significantly exceeds CVM total for the concert hall. CVM total is 46% greater than CVM direct for the concert hall, whereas CVM total is four times greater than CVM direct for the museum.

6. Estimates based on the travel cost method

First, the total per capita cost (C_i) of a return trip for the average visitor from each zone i to the cultural institution is described as a combination of km-cost, time-cost and average entrance fee at the time of the study.

$$C_i = k_i + m \cdot t_i + f \quad \text{with} \tag{1a}$$

$$k_i = \frac{(2 \cdot \delta_i \cdot b)}{g_i} \quad \text{and} \tag{1b}$$

$$m = w \cdot \frac{1}{3} \tag{1c}$$

C_i is the total per capita cost of a return trip for the average visitor from zone i, k_i are per capita km vehicle costs based on a vehicle operating expense (b) of €0.195/km (which agrees with data from the Swedish Tax Agency[3]), δ_i is the one way distance, in km, for the average visitor from zone i, and g_i is the average number of passengers travelling in the same vehicle from the zone. The per capita time cost for all visitors is m, and is based on 1/3 of the average per minute income, based on the average annual income (approx. €33,800) in the sample (w), to capture the opportunity cost of time. This approach is consistent with previous studies (McConnell & Strand, 1981; Navrud & Mungatana, 1994; Poor & Smith, 2004; Ward, Johnson, McConnell, & Strand, 1983). The per capita time spent (in minutes) for a return trip is represented by t_i. The average entrance fee (f) was €2.80 per visitor for the museum and €15 for the concert hall.

The travel costs (C_i) are then included in "the trip generating function" (2), which predicts the number of visits (V_i) per zone i in relation to the population (P_i).

$$V_i/P_i = f(C_i) \tag{2}$$

V_i = total number of visits from zone i, P_i is the population of zone i and C_i is the travel cost from zone i to the site. As suggested in earlier applications (cf. Driml, 2002; Poor & Smith, 2004; Smith, 1975), three functional forms for the trip generating function are considered[4]: linear, semi-log and log–log

[2] Two outliers for the museum (exceeding €1000) and three outliers for the concert hall (also exceeding €1000) were removed.

[3] www.skatteverket.se.

[4] Even though no theoretical justification for any particular functional form exists (Smith, 1975), previous research has shown that the relationship between costs and number of trips may be expected to be non-linear (McConnell & Strand, 1981; Ribaudo & Epp, 1984).

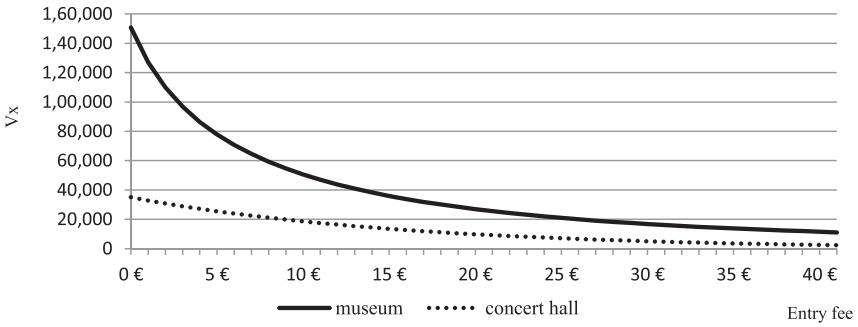

Fig. 2. Estimated number of visitors at the museum and the concert hall under consideration of increasing (hypothetical) entrance fee levels.

$$V_i/P_i = \beta_o + \beta_1 \cdot C_i + \varepsilon_i \quad \text{(linear)} \tag{3a}$$

$$\ln(V_i/P_i) = \beta_o + \beta_1 \cdot C_i + \varepsilon_i \quad \text{(semi-log)} \tag{3b}$$

$$\ln(V_i/P_i) = \beta_o + \beta_1 \cdot \ln(C_i) + \varepsilon_i \quad \text{(log–log)} \tag{3c}$$

V_i/P_i is the number of visits per thousand inhabitants in each zone. C_i is the total return trip cost per capita, as outlined in (1a). Driml (2002) suggests "best fit" as measured by (adjusted) R^2 to decide on the functional form, which is supported by Tabachnick and Fidell (2006). A direct comparison of R^2 between semi-log and log–log is legitimate (Smith, 1975). For the concert hall, the semi-log and, for the museum, the log–log form yielded the best fit.[5] Another premise that is satisfied is that β_1 is negative (Driml, 2002). The regression summaries and adjusted R^2 are given below, for the semi-log and log–log functions:

concert hall	(semi-log) adjusted R^2 0.939
	(log–log) adjusted R^2 0.817
museum	(semi-log) adjusted R^2 0.804
	(log–log) adjusted R^2 0.818

Generating a demand function – Having obtained a trip generating function, a demand function using hypothetically increasing entrance fees is generated. The travel cost is successively increased by the amount of a hypothetical additional entry fee (€1, €2, €3 and so on, up to €40), and the number of visits V_{xi} from each zone i in relation to the hypothetical additional entry fee x is predicted using equation (4).[6] The log–log function for the museum can be rewritten as outlined in equation (4):

$$V_{xi} = \beta_0' \, (C_i + F_x)^{\beta_1} P_i \tag{4}$$

where β_0' is the antilog of β_0 and F_x is the additional hypothetical entry fee. A table of predicted visits is constructed and is shown graphically in Fig. 2. The total demanded visits, V_x, can be calculated for each fee level, F_x:

$$V_x = \sum_{i=1}^{n} V_{xi} \tag{5}$$

where $n = 7$ for the museum and $n = 8$ for the concert hall, and $x = 0, \ldots, 40$ (Table 5).

To describe the relationship between the dependent variable, the number of visits (V_x), and the independent variable, the additional entry fee level (F_x), a new demand function is estimated, in order to calculate total consumer surplus. We are looking for the best functional form for the demand function. A linear, semi-log and log–log form are considered.

$$\text{Linear}: V_x = \beta_0 + \beta_1 F_x + \varepsilon \tag{6a}$$

$$\text{Semi-log}: \ln(V_x) = \beta_0 + \beta_1 F_x + \varepsilon \tag{6b}$$

$$\text{Log–log}: \ln(V_x) = \beta_0 + \beta_1 \ln(F_x) + \varepsilon \tag{6c}$$

Based on adj. R^2, the semi-log model shows the best fit for the museum (**0.969** vs. 0.935 for the log–log) and the concert hall (**0.972** vs. 0.924 for the log–log model). The regression results are presented in Table 6.

The decreasing number of visitors in response to hypothetically increasing entrance fees creates a downward sloping demand curve for each cultural institution. In order to calculate the total consumer surplus, a Y-intercept (at €40) is imposed on the downward sloping demand curve, since the semi-log function approaches this axis asymptotically (cf. Driml, 2002).

The area under the graph (in Fig. 2) constitutes the consumer surplus and equals €552,000 for the concert hall and €1,681,000

Table 5
Regression summaries (ordinary least squares) for the trip generating function with best fit based on adjusted R^2.

	Functional form	N	F	Sign	β_0	β_1	Adjusted R^2
Museum	Log–log	7	28.016	0.003	17,991	−2.543	0.818
Concert hall	Semi-log	8	109.45	0.001	8.844	−0,18	0.939

Table 6
Regression summaries (ordinary least squares) for the demand functions with best fit based on adj. R^2.

	Functional form	N	F	Sign	β_0	β_1	Adjusted R^2
Museum	Semi-log	41	1247.9	0	11.565	−0.006	0.969
Concert hall	Semi-log	41	1365.1	0	9.547	−0.0003	0.972

[5] The log–log for the museum and semi-log for the concert hall were also compared to the linear form. A direct comparison of the adjusted R^2 from log functions was possible, by predicting values and converting them to exponent form. Thereafter, they were regressed against the actual visits (cf. Gujarati & Porter, 2009). The resulting adj. R^2 is directly comparable with the R^2 from a linear function. The semi-log function for the concert hall (adj. R^2 0.939) has a better fit than the linear form, with an adj. R^2 of 0.648. The log–log function for the museum is superior (adj. R^2 0.818) to the linear form (adj. R^2 0.365).

[6] A basic assumption is that behaviour in relation to the cost of entry (F_x) is the same as the behaviour in relation to the cost of travel (C_i) (Driml, 2002). As suggested by Driml (2002), the calculation of V_{xi} includes converting back from logarithms to the original scale (raising to a power), and recalculating from per capita to aggregate values, multiplying by P_i.

Table 7
Comparison of the contingent valuation and the travel cost estimates.

	CVM direct	CVM total	TCM total
Concert hall	€1,330,000	€1,960,000	€1,558,000
Museum	€1,480,000	€5,960,000	€5,053,000

for the museum. Adding the costs for entrance and travel, including the opportunity cost of time, to the consumer surplus gives an indication of the value created at each cultural institution. The calculation is outlined below.

Willingness-to-pay = Consumer Surplus + travel costs and entrance fee:

Concert hall: €552,000 + €1,006,000 = €1,558,000
Museum: €1,681,000 + €3,372,000 = €5,053,000

Using the TCM, the total value created by the concert hall is equivalent to 1,558,000 euros, whereas the Nordic Watercolour Museum creates a value of 5,053,000 euros.

7. Comparing results from contingent valuation and travel cost method

The aggregated values for the museum and concert hall, estimated using the contingent valuation method and the travel cost method, are presented in Table 7. CVM direct reflects the value (willingness-to-pay) for the cultural experience using the contingent valuation method. For the concert hall, the cultural experience is the performance for which the entrance fee was charged. At the museum, the cultural experience is the exhibition for which the entrance fee is paid. CVM total reflects a bundle of experiences including CVM direct and complementary experiences during the trip to the cultural institution. CVM total is measured using the contingent valuation method. TCM total reflects the value measured using the travel cost method.

First, CVM direct estimates are presented. The estimates for the concert hall are similar to those for the museum (there is no statistical difference), though the mean use value per individual was lower at the museum. A large number of visitors to the museum compensates for the low mean values.

The second measure of value was CVM total, which consisted of the core cultural experience (CVM direct) plus all other experiences before and after. The CVM total for the museum is considerably larger than estimates for the concert hall (by approximately 200%). At the museum, CVM total is approximately 300% larger than CVM direct. This is not the case for the concert hall.

The TCM total for the concert hall is similar to CVM direct and CVM total. For the museum, TCM total is larger than CVM direct (approximately 250%) but close to CVM total.

8. Conclusions

This paper has applied valuation techniques to measure the value of cultural experiences. The comparison revealed that estimates from CVM and TCM may differ considerably, particularly if the experience being studied is part of a bundle of experiences. Even though only respondents whose primary reason for travelling was the visit to the cultural institutions were included in the survey, other experiences, although not necessarily primary reasons for the travel, may still have been important in the decision making process. The comparison of the results allows for some conclusions:

1. Using CVM to measure the core cultural experience yields similar values for the studied institutions. However, a comparison of CVM direct and CVM total suggests that the core cultural experience at the museum is only one part of a bundle of experiences, including the beautiful environment on the island in the archipelago, opportunities for taking walks, visits to a port nearby and, in particular, restaurants and cafes. CVM total, therefore, is an inappropriate measure for direct use value (core cultural experience) at the museum.
2. On the other hand, the core cultural experience at the concert hall is the most important aspect of the visit. CVM direct is similar to CVM total. There were few additional experiences available which could increase the value of this experience.

For the museum, the TCM yields considerably larger estimates than CVM does for CVM direct, but similar estimates for CVM total. Even though the survey only included individuals whose primary reason for travel was the cultural experience, the results indicate that most visitors might have had other valuable experiences. The zonal TCM is limited to measuring the total experience. A third provisional conclusion is therefore that:

3. Applying the TCM is inappropriate when the total experience consists of multiple experiences, since not only the core cultural experience but also a bundle of experiences may motivate the trip. These conclusions are consistent with those of Navrud and Ready (2002) and Throsby (2001), who observe difficulties in disentangling the travel cost for just one resource, since most trips have multiple purposes.

One issue to be considered is the assumptions made. In the analysis, travel costs were defined as vehicle costs, entrance fee costs and the opportunity cost of time. The opportunity cost of time is certainly the most debatable. For some, travelling may be a valuable experience in itself, whereas others might experience travelling as a cost (Randall, 1994). In this study, it was decided to include the opportunity cost of travel time, based on the average hourly wage of the sample. The time cost, in turn, was multiplied by 1/3, which is contestable but is the same as was applied in earlier studies (McConnell & Strand, 1981; Navrud & Mungatana, 1994; Poor & Smith, 2004; Ward et al., 1983). Nonetheless, it is arbitrary, since we cannot say whether travel per se is perceived as a cost or a benefit. Moreover, individuals' level of income may influence the perceived costs. Therefore, both the wage and the fraction may be disputed. The former could be solved by adjusting the wage to the mean zonal income. Further investigation into individuals' perceptions of the costs of travel may shed light on this area of concern. Another assumption influencing the results is that individuals' behaviour in relation to the costs of entry is assumed to be identical to their behaviour in relation to the costs of travel. This may not necessarily be the case.

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