

## **Should historic sites protection be targeted at the most famous?**

### **Evidence from a contingent valuation in Scotland**

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#### **Abstract:** (max 500 words)

We used a contingent valuation survey of a random sample of the general public living in Scotland to estimate how willingness to pay (WTP) for the conservation of historic sites (such as castle and stone circles) varies with how well-known these sites are and whether people have visited them. Each respondent was asked to state a maximum WTP in terms of higher income taxes for the conservation of two sites, one of which was “famous” and one of which was less well-known. The hypothetical scenario involved payment to avoid future damage to each site. When observable differences in respondent characteristics are controlled for, we found no significant differences in mean WTP across sites. However, a significant effect was found for respondent familiarity with each site (in terms of recognising it on a photograph), with sites which respondents were more familiar with attracting higher WTP values. Distance effects on WTP were mixed: significant effects of distance of the site from respondents’ homes were only found for the less well-known sites, but not for famous sites. The main conclusions of the study were that (i) the Scottish general public are willing to pay for the conservation of historic sites and that (ii) such values exist as much for less-well known sites as for famous sites. This implies that public funds should not be allocated solely to conservation of the best-known sites.

#### **Keywords:** contingent valuation / historic site / willingness to pay

##### 1. Research aims (max. 200 words)

This study aims at measuring public preferences for the preservation of Scottish Historic sites through a contingent valuation (CV). More specifically, the objective is to analyse whether public funding should be allocated to the preservation of historic sites and how to prioritise allocation between sites. The main originality of this work is to investigate if familiarity with the site is a determinant of individuals’ willingness to pay (WTP) for its preservation, in other words if public funding should be targeted at the best-known sites only. To address this question, 946 Scottish residents are asked, in a CV survey, to state their WTP for the preservation of a combination of famous and less well-known Scottish historic sites.

##### 2. Introduction

Scotland’s rich historic heritage contributes greatly to its cultural identity and its attractiveness as a tourism destination. However, the conservation of such an extensive set of assets imposes a considerable financial burden on the state, which can only partly be met by visitor fees. Under tightening budget constraints, this investment of public funding can be questioned. A second, related decision problem relates to the allocation of public funds across different historical properties: how

should spending be prioritised? A wide range of methods can be used to measure public's preferences and values for conserving cultural heritage. Contingent valuation (CV) is particularly suitable in this instance as it enables to measure the use and non-use value associated with the preservation of historic sites. [1]. Indeed, CV has been frequently applied to cultural resources. Noonan [2] identifies over 100 of these studies, from which 26 concern historical sites. This method is often part of a cost-benefits analysis for policy advice. It has been used to justify investments and guide restoration plans for historic sites [3-4, 5-6].

The originality of our paper is to consider the effect of familiarity with and distance from historic sites on individuals' WTP for their protection..

### 3. The case studies

Six case studies were chosen from the 350 historic sites managed by Historic Scotland on behalf of the Scottish Government. These case studies included three famous sites – Calanais Stone Circle, Kilchurn Castle and St Andrews Cathedral – and three less well-known sites – Aberlemno stone cross, Maclellan's castle and Mousa Broch. Results showed that there was indeed a large difference in familiarity between these 2 groups of properties. The sites represent very different periods of Scottish history and are spread across the country.

The Calanais Stone Circle was erected about 5,000 years ago on the island of Lewis. Like Stonehenge, Calanais was probably associated with religious and ritual events and may have helped Stone Age people track the movement of the stars and planets. Kilchurn Castle is one of the most picturesque castles in Scotland; it is set on an island in Loch Awe, Argyll. It dates mainly from the fifteenth and sixteenth centuries, and was abandoned and fell into ruin about 250 years ago. St Andrews was a very important religious site associated with Scotland's patron saint, St Andrew. The Cathedral was begun about 850 years ago and was finally dedicated in 1318. Though it is now a ruin, it was the largest and most important church in medieval Scotland.

Mousa Broch was built about 2,000 years ago in Shetland. Broch towers like this are only found in Scotland and are among Scottish most impressive pre-historic buildings. Archaeologists are not sure if they were dwellings or were more like a fortress. Mousa is the tallest and most complete broch to survive. The Aberlemno stone cross was carved in the 8<sup>th</sup> century. It is one of three Pictish stones set on a ridge near Aberlemno in Angus. It is thought to have stood on this site for over 1200 years, has both Christian and Pictish symbols and is evidence of the time when Pictish kings adopted Christianity in the North East of Scotland. Maclellan's Castle, in the centre of Kirkcudbright, was built about 1580 when Thomas Maclellan was provost of the town. The castle gives a good idea of how a gentry family would have lived in the sixteenth century from the vaulted kitchens to the great hall and private chambers.

These 6 sites are threatened by the effects of weathering, and their preservation relies on the availability of public funding, mainly provided by taxes. Visitor fees are insufficient to meet conservation needs. In order to pay for conservation work to protect the sites, and keep these sites safe and available to visitors, public funds therefore need to be allocated to Historic Scotland.

### 4. Method and Data

We used an internet-based contingent valuation survey to collect WTP data for the protection of the sites, based on a random sample of the Scottish general public. Three different versions of the questionnaire were used, resulting in each respondent being asked to state his WTP for the conservation of two sites. "Conservation" was defined here as avoiding future damage. Each version

of the questionnaire combined one famous site with one less well-known site. As part of the survey, each respondent was asked: “*what is the MOST that you would be willing to pay in higher taxes each year for the next 10 years to maintain this site and keep it open to the public?*”. The WTP bids were collected on payment cards presenting all the integer values from £0 to £10, with the possibility to state a WTP higher to £10 in an open-ended option. The low level of protest bidding (6.3%) suggests that respondents found the hypothetical market to be credible and, on the whole, support the idea that public tax revenues are an appropriate way of funding the conservation of historic sites in Scotland.

309 respondents answered the questionnaire concerning Aberlemno Cross and Kilchurn Castle, 302 answered the questionnaire concerning Calanais and Maclellan’s Castle, and 336 answered the survey concerning Mousa Broch and St Andrews Cathedral. After dropping the 110 protest bids the sample includes 1628 observations of WTP, stated by 836 respondents.

The data collected through the survey concerns: (i) the willingness to pay to protect each of the sites and (ii) potential determinants of individual WTP. The determinants of WTP were explored through regressions in which WTP is the dependent variable. We included familiarity with and distance to the site on WTP as focus explanatory variables. Age, gender, employment status, social class as an indicator of income and location of residence (urban, rural or con-urban) were also included in the regressions as control variables.

Familiarity with the site was measured by two indicators: whether respondents can recognise the site on a picture; and whether they have visited the site in the past. On average, half of the respondents recognised the “famous” site in each pair, while an average of 15% recognised the less well-known site. Distance to the site from the respondent’s home was estimated using postcodes provided by respondents in the survey.

In order to analyse the determinants of the WTP for sites protection, we use the Tobit model, also known as censored normal regression model. This model is appropriate for the analysis of this data as WTP cannot be negative, takes the value zero as a minimum and then is a continuous random variable over strictly positive values. The parameters are estimated through maximum likelihood estimation and we analyse the conditional marginal effects of the variables of interest on WTP, estimated at the sample means of the independent variables.

## 5. Results

The average WTP for the protection of the sites is of £2.79 per year during 10 years for each site ( ). Once we control for observable differences in respondent characteristics, we find little evidence of significant differences in WTP across sites<sup>1</sup>, in other words, the differences in average WTP across sites appearing in Table 1 are mainly due to differences between individuals responding to each version of the questionnaire. Almost half of the observations correspond to a zero WTP (779 observations, 47.9 %). The number of zero bids is not significantly different across sites.

**Table 2** presents the marginal effects<sup>2</sup> of the determinants of WTP estimated from the Tobit models. It shows that when respondents recognise the site in the picture provided they have a significantly higher WTP to protect it: this effect is consistent across all models. This effect corresponds to an increase by £1.42 of the WTP if we consider all sites together and ranges from a zero effect for Kilchurn

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<sup>1</sup> A Tobit regression of WTP on individual characteristics including dummy variables for each site shows no significant impact of site identity on WTP.

<sup>2</sup> The marginal effect were estimated at the sample means of the independent variables.

castle to an increase by £3.3 for Aberlemno Cross. The analysis also shows that respondents who recognise the site in the picture provided are also less likely to state a zero willingness to protect this site. However, having visited the site has no effect on their WTP.

Interestingly, the distance respondents live from any site has a significant impact on the WTP for the least famous of the two sites presented in a questionnaire (Aberlemno Cross, Maclellan Castle and Mousa Broch), but no impact on the WTP for the most famous ones (Kilchurn Castle, Calanais and St Andrews Cathedral). However the sign of this effect differs: the further away respondents live from Aberlemno Cross or Mousa Broch, the more they are willing to pay for their protection but, the further away they live from Maclellan Castle, the less they are willing to pay.

## 6. Conclusion

This paper shows evidence that people do care about the protection of historic sites in Scotland, even if they do not visit them. We find no significant differences in willingness to pay across sites which is interesting, since the sites range from the “famous” to the “relatively obscure”, and vary greatly in actual visitor numbers. This result goes against the idea that only most famous and most-visited sites should be preserved. However being able to recognise a site is important to the magnitude of willingness to pay for its conservation.

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**Table 1**

Mean, standard deviation, minimum and maximum values of WTP for each site

Site	Summary of WTP				
	Freq.	Mean	Std. Dev.	Min	Max
Aberlemno Cross	268	3.22	13.84	0	200
Calanais	249	2.54	9.95	0	150
Kilchurn Castle	273	3.77	14.92	0	200
MacLellan's Castle	252	2.26	9.76	0	150
Mousa Broch	293	2.32	5.10	0	50
St Andrews Cathedral	293	2.65	5.20	0	50
Total	1628	2.79	10.41	0	200

**Table 2**

Marginal effects of the determinants of WTP all sites pooled together and for each site computed after Tobit models<sup>3</sup>

<b>dE(y x)/dx</b> <b>y = WTP</b>	<b>Questionnaire 1</b>		<b>Questionnaire 2</b>		<b>Questionnaire 3</b>		
	All sites pooled	Kilchurn castle	Aberlemno cross	Calanais	MacLellan's castle	St Andrews cathedral	Mousa Broch
Recognise	1.416**	1.207	3.309**	1.604*	2.776**	1.043*	1.223*
Visited	-0.366	0.074	-1.983	-0.431	-0.028	0.250	-0.643
Distance (miles)	-0.001	-0.017	0.041**	0.010	-0.031**	0.010	0.010*
N (observations)	1620	271	265	248	252	293	291
Log- L of Tobit	-3924.3	-749.5	-702.5	-585.9	-540.4	-615.8	-567.6
Pseudo R2 of Tobit	0.013	0.027	0.032	0.016	0.026	0.038	0.039

\*p<0.01; \*\*p<0.05; \*\*\*p<0.01

<sup>3</sup> All the models included the control variables presented in section 4, results can be provided on demand.