

## Annex

### A1 - Site Selection: Initial scoping results

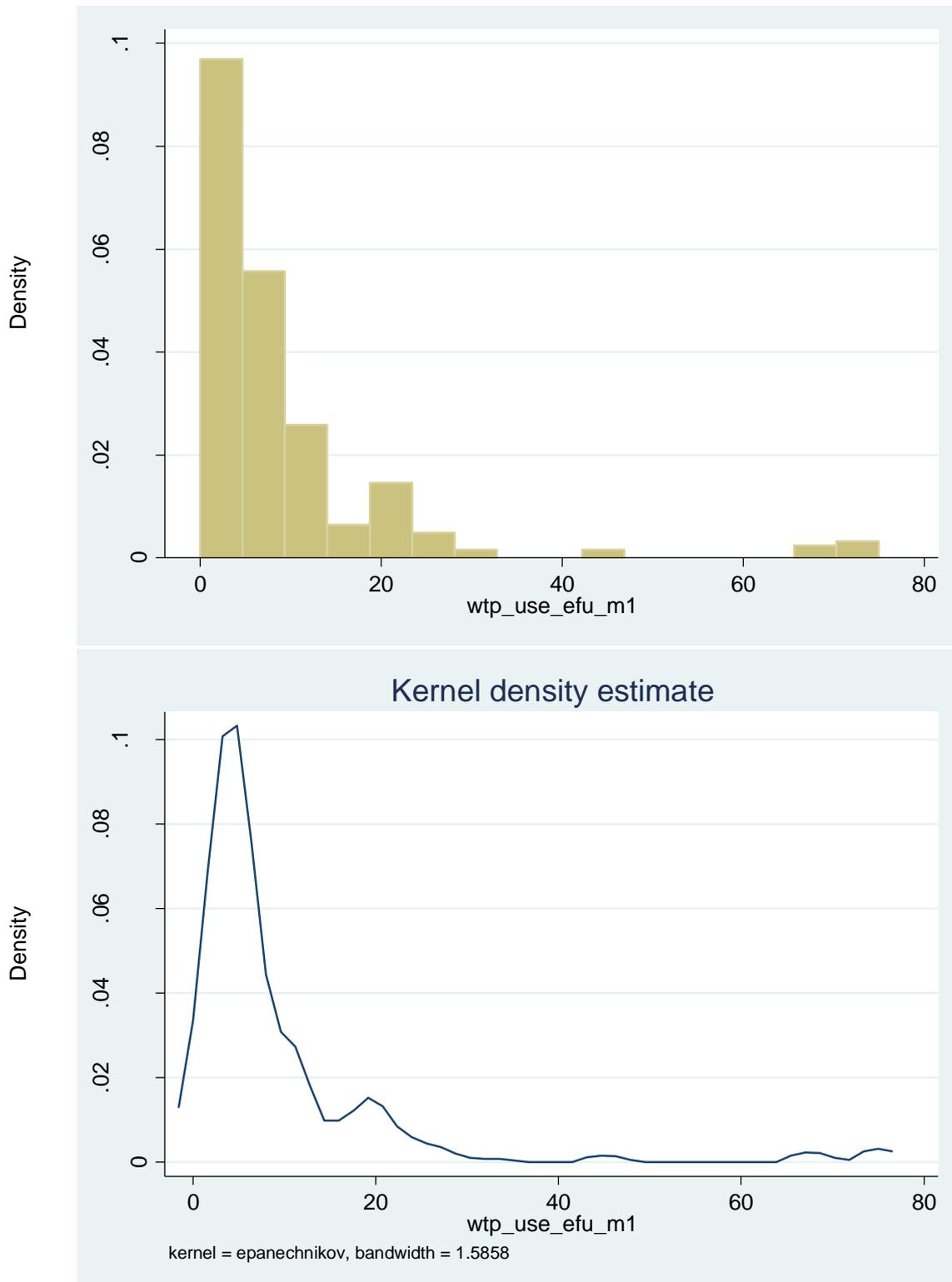
Table A1.1 - Site selection process for phase 1

Location	Museums	Visited in the last 2 years	Visited in the last 3 years	Entry fee	Visitor numbers
York	York National Railway Museum	950	1100	No	733618
Manchester	Manchester Museum	650	650	No	453970
Oxford	Ashmolean	200	NA	No	848359
Newcastle	Great North Museum	500	600	No	491148
Cambridge	Fitzwilliam Museum	NA	NA	No	417781
Liverpool	Mersey Maritime Museum	350	400	No	658898
Newcastle	Newcastle Discovery Museum	600	500	No	411695
Liverpool	Liverpool World Museum	600	500	No	671171
Other options with no entrance fee, but small numbers of visitors					
Canterbury	The Beany	NA	NA	No	326360
Exeter	Royal Albert Memorial Museum & Art Gallery - RAMM	NA	NA	No	246103
Leeds	Leeds Royal Armouries	150	400	No	218535
St Ives	Tate St Ives (More of a gallery than a museum space)	NA	NA	No	211920
<b>Not suitable</b>					
Entrance fee charged					
Portsmouth	National Museum of the Royal Navy Portsmouth  Visitor numbers includes (Mary Rose, Historic Dockland Museum)	NA	NA	Yes	1015415
Leeds	Leeds Thackery Medical Museum	50	50	Yes	55486
Bath	Roman Baths	NA	NA	Yes	1044802

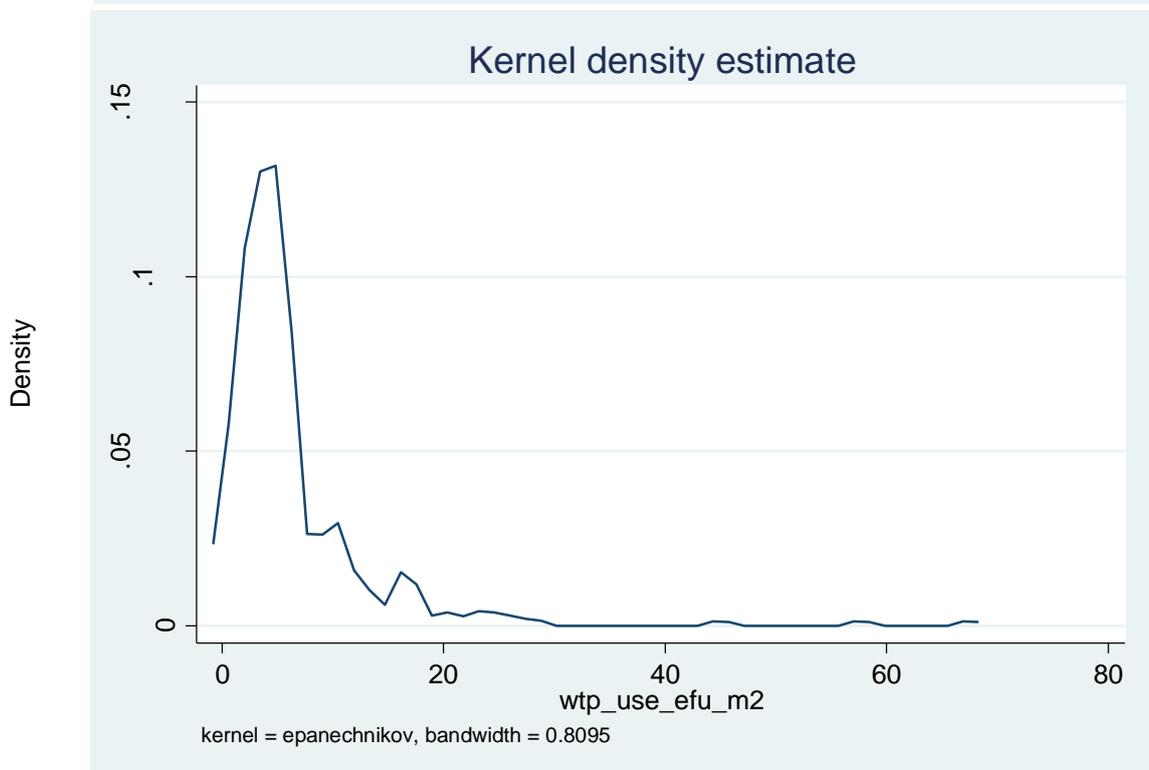
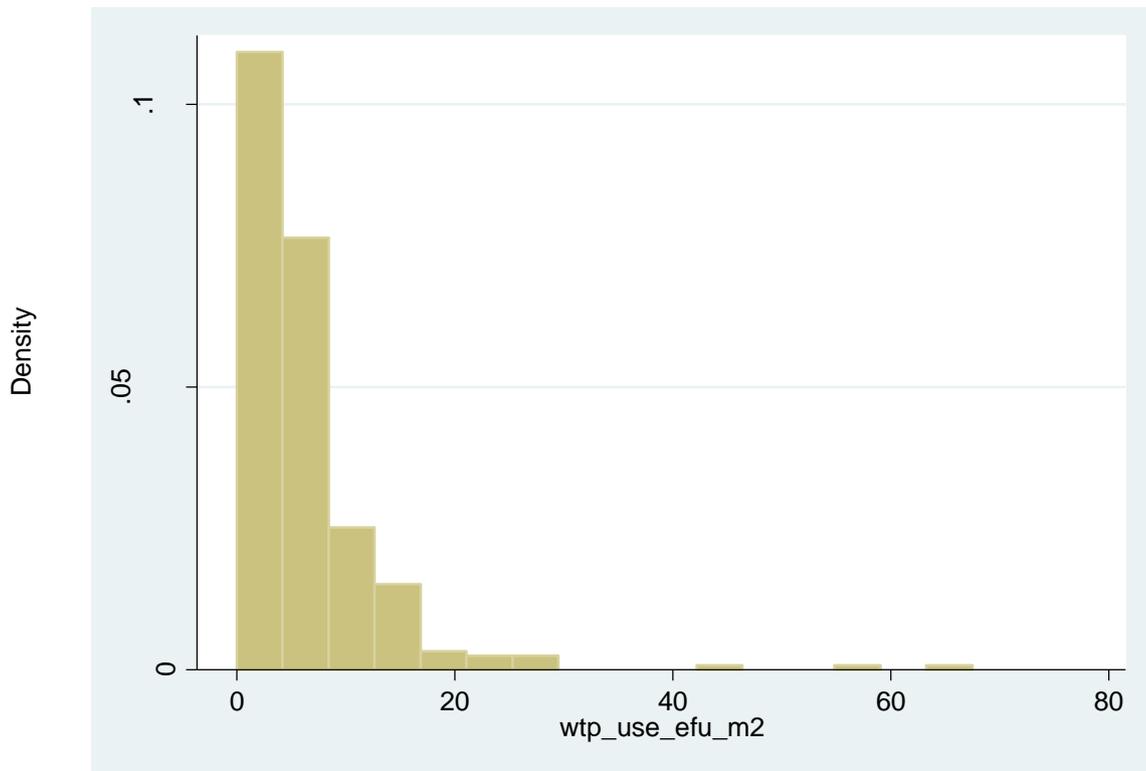
<b>Location</b>	<b>Museums</b>	<b>Visited in the last 2 years</b>	<b>Visited in the last 3 years</b>	<b>Entry fee</b>	<b>Visitor numbers</b>
Norwich	Norwich castle museum and art gallery	NA	NA	Yes	214080
The New Forest	Beaulieu National Motor Museum	NA	NA	Yes	335065
Purbeck	The Tank Museum	NA	NA	Yes	191134
Truro	Royal Cornwall Museum	NA	NA	Yes	468093
Milton Keynes	Bletchley park	NA	NA	Yes	286195
London	Horniman Museum and Gardens	NA	NA	No	758868

## A2 Histograms & Kernel Density

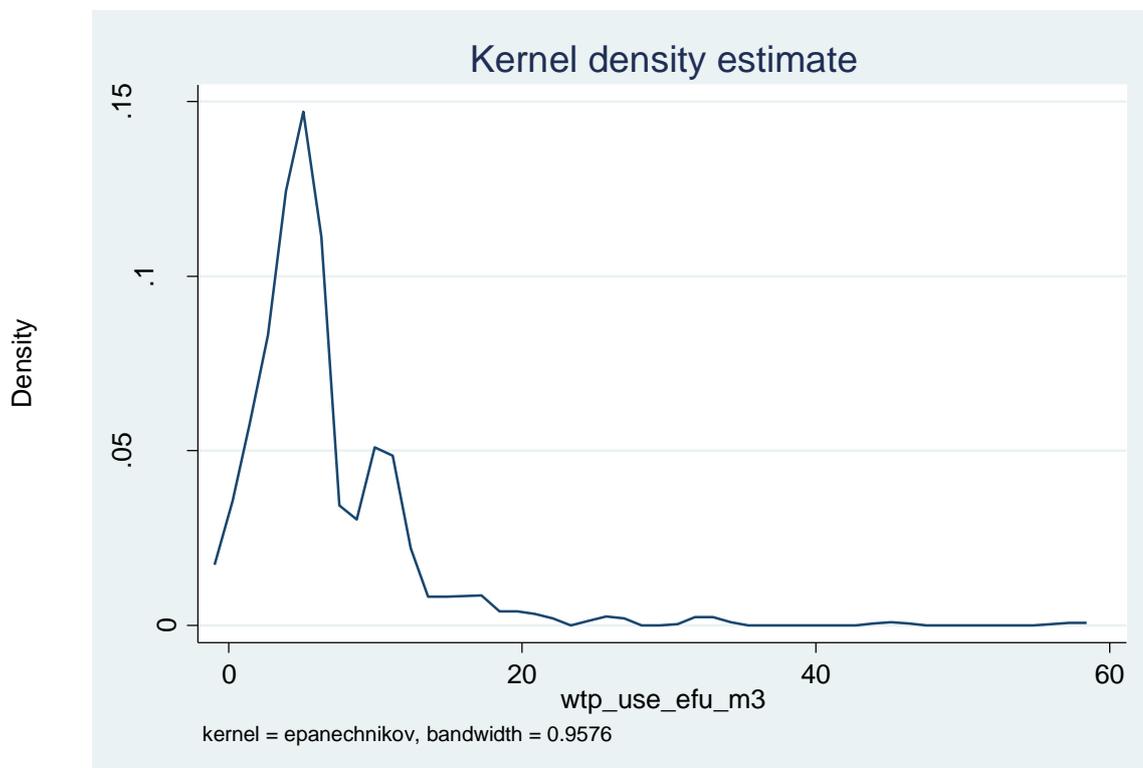
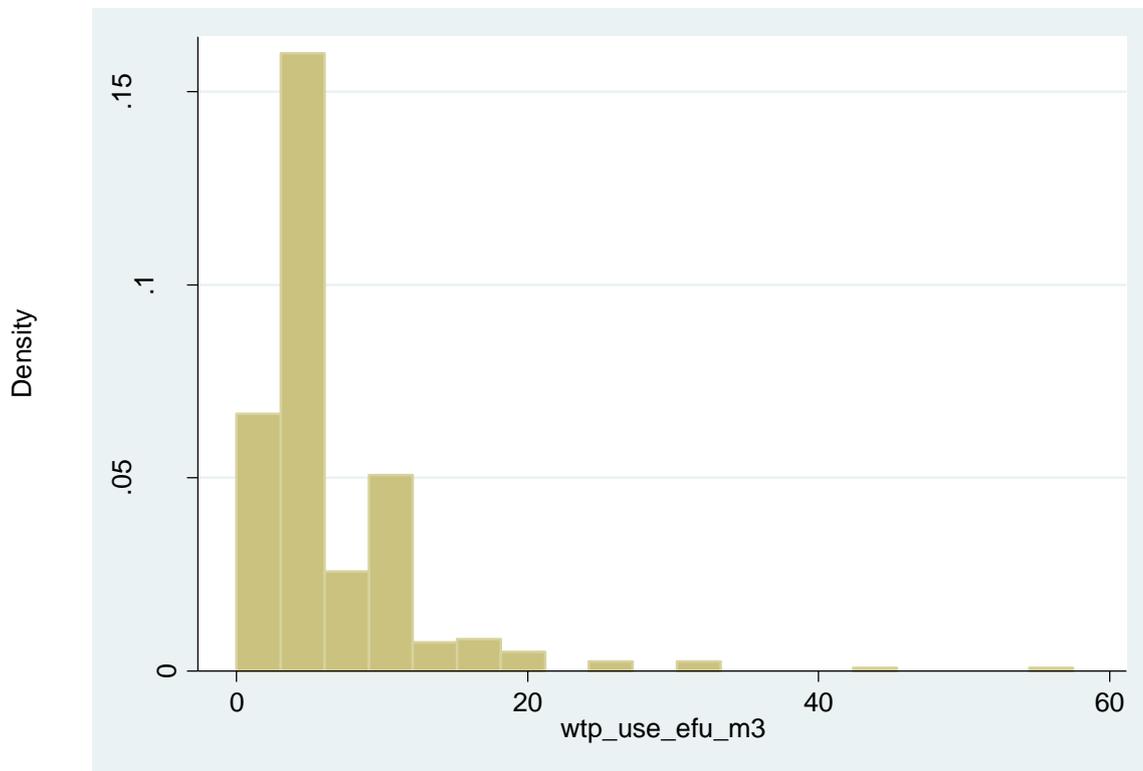
### A2.1 Great North Museum – WTP distribution for museum visitors



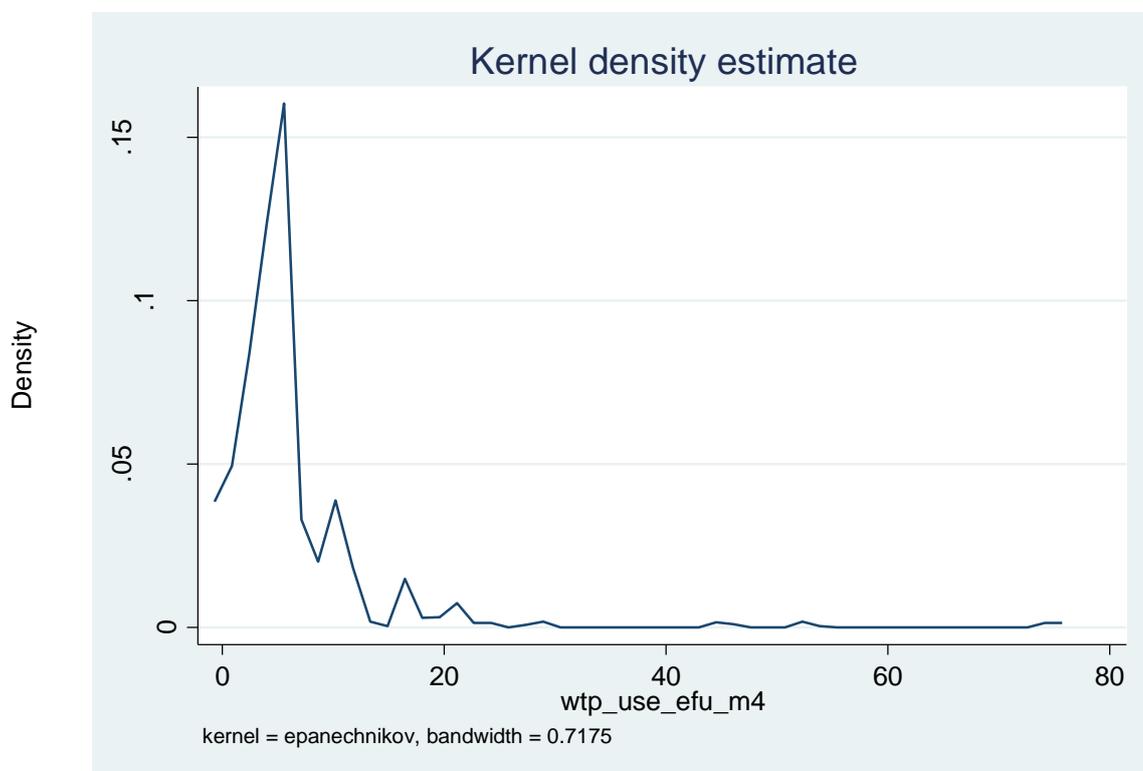
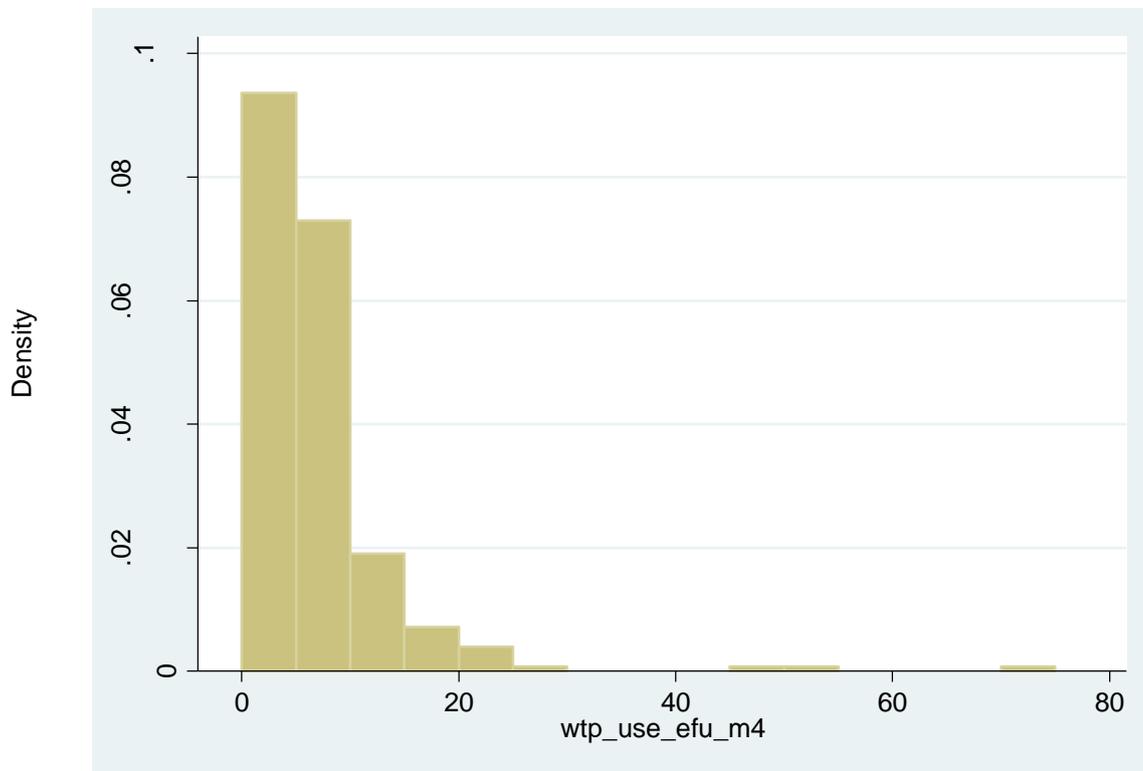
## A2.2 World Museum – WTP distribution for museum visitors



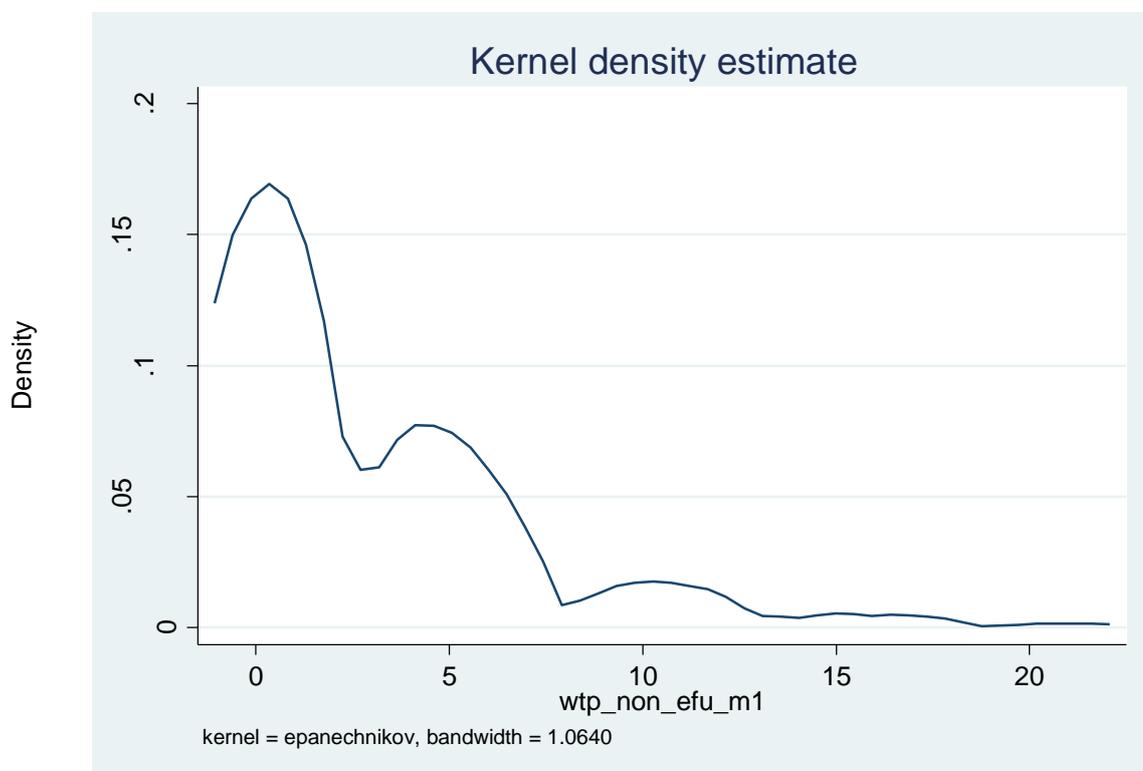
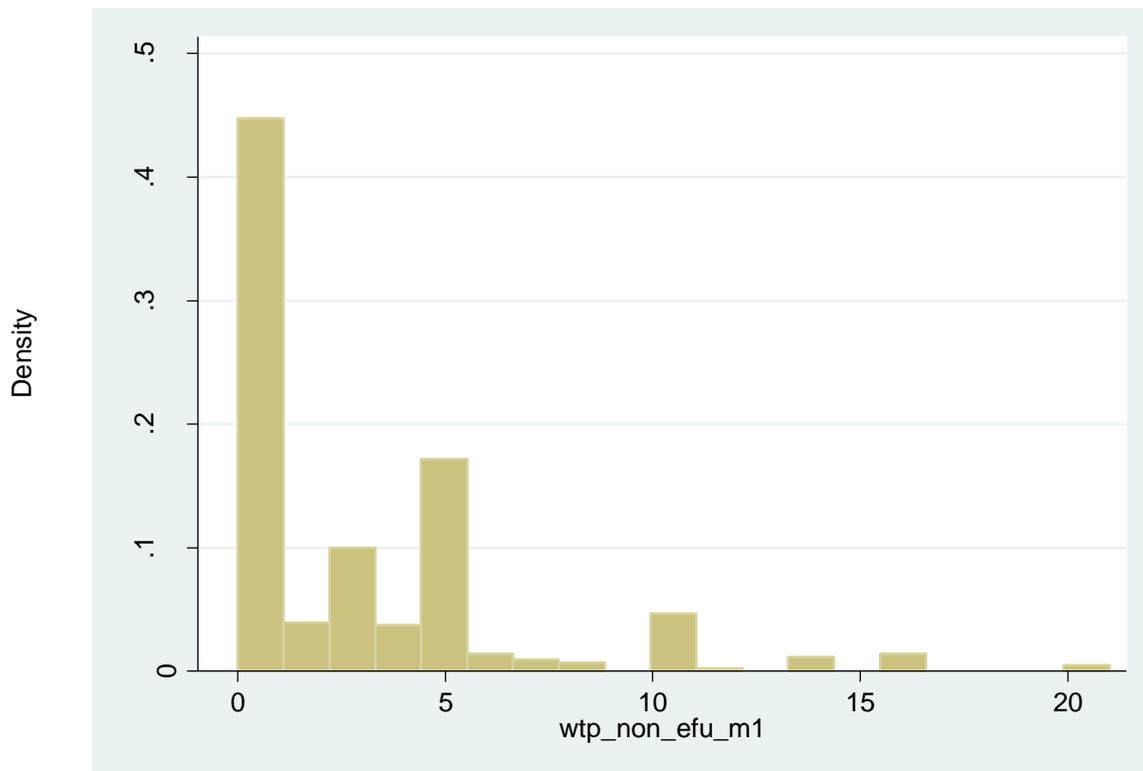
### A2.3 National Railway Museum – WTP distribution for museum visitors



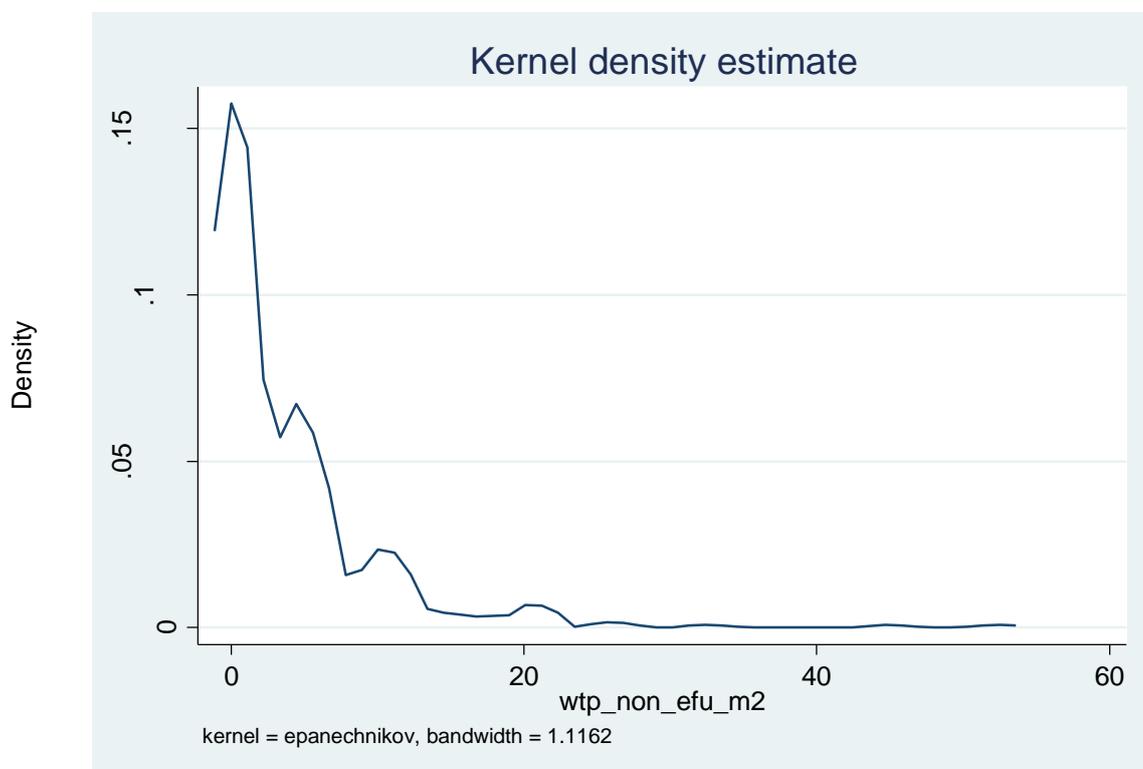
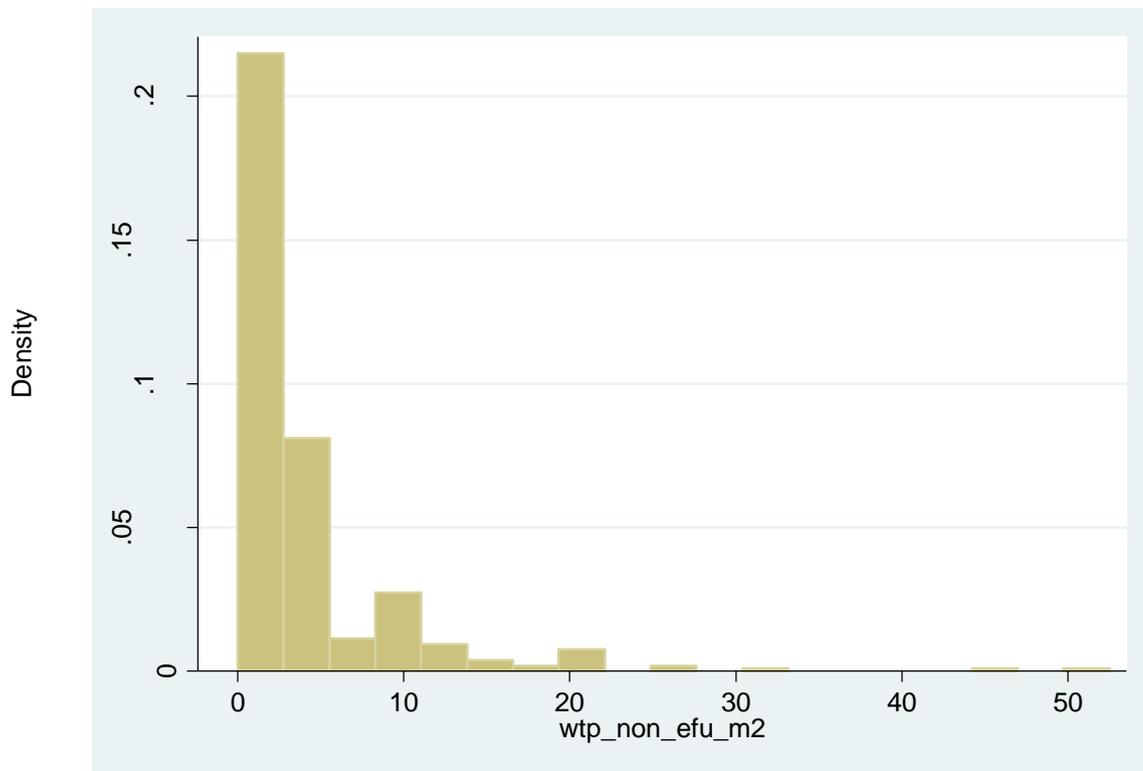
## A2.4 Ashmolean Museum – WTP distribution for museum visitors



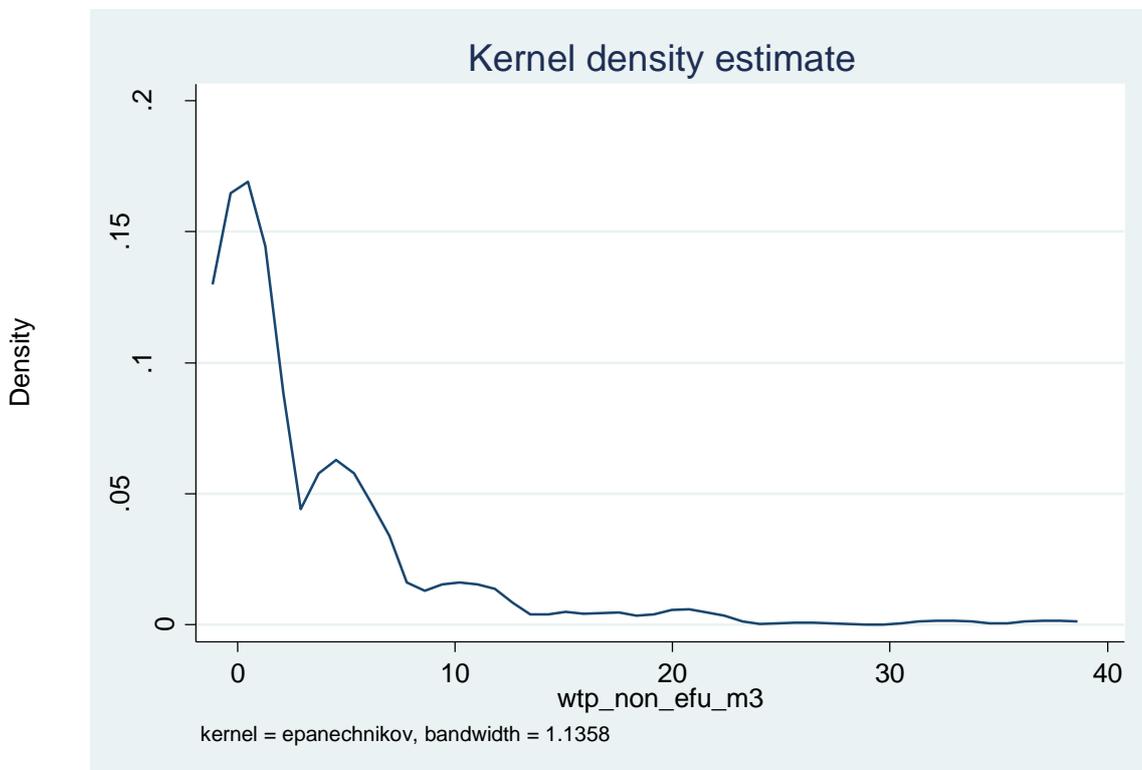
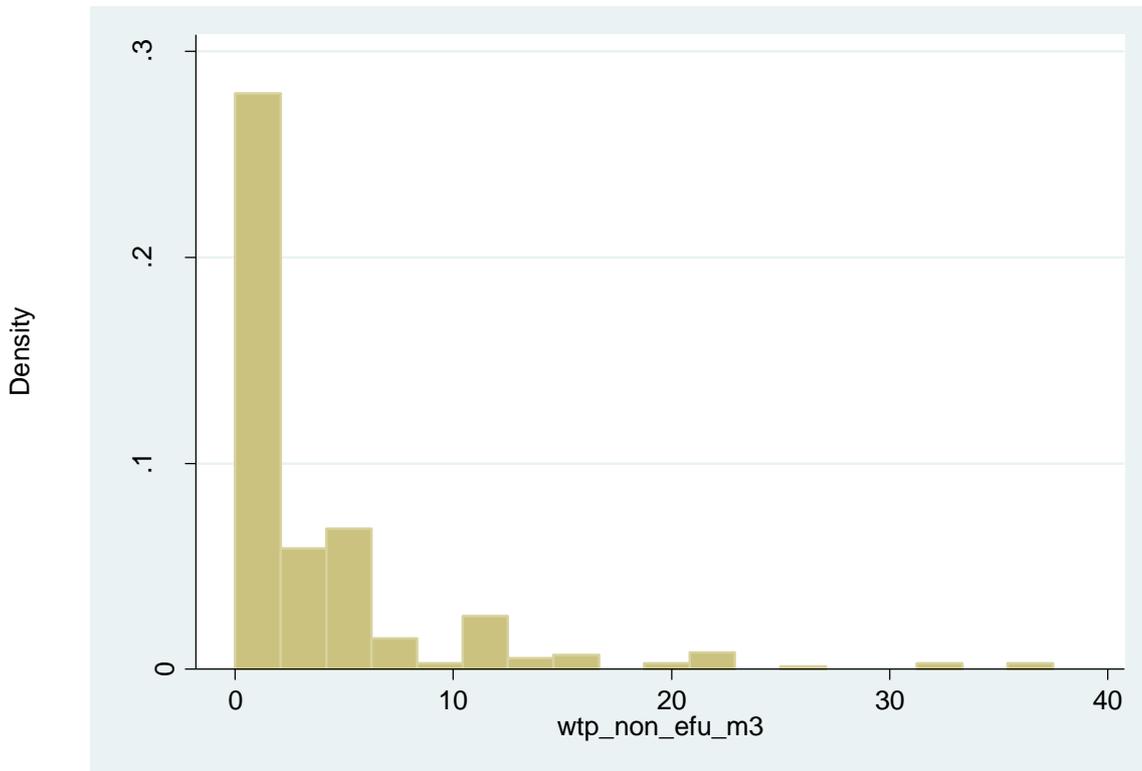
## A2.5 Great North Museum – WTP distribution for museum non-visitors



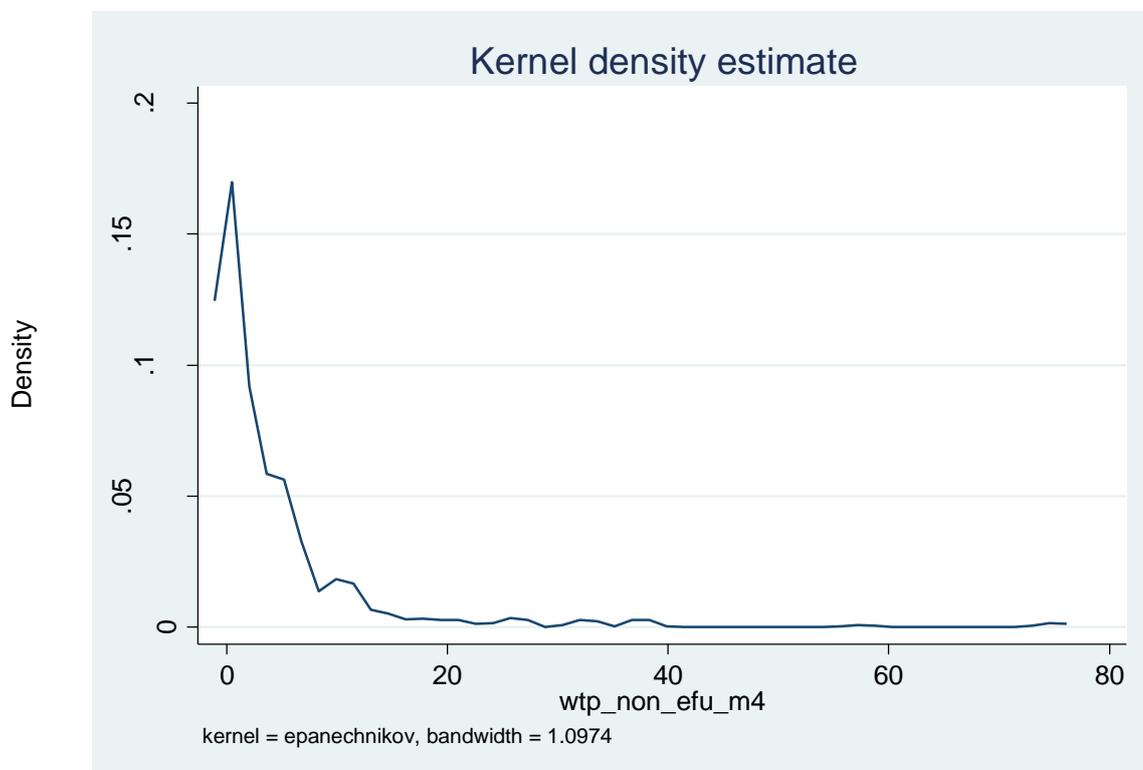
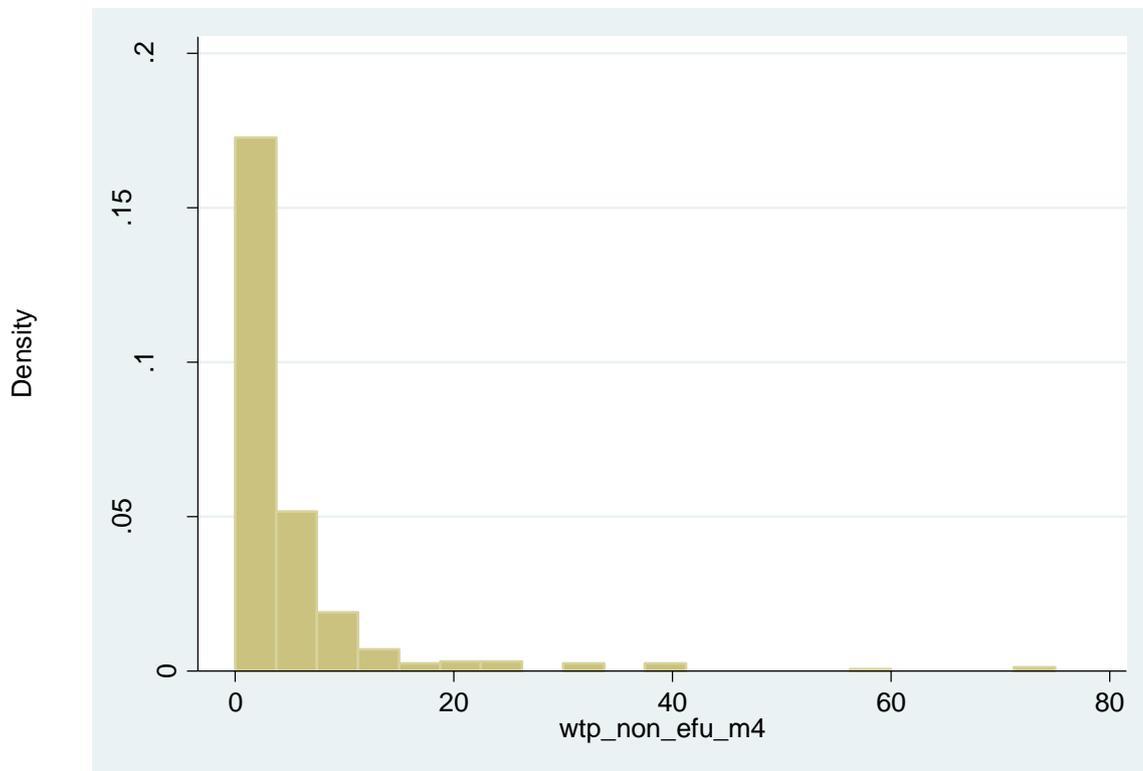
## A2.6 World Museum – WTP distribution for museum non-visitors



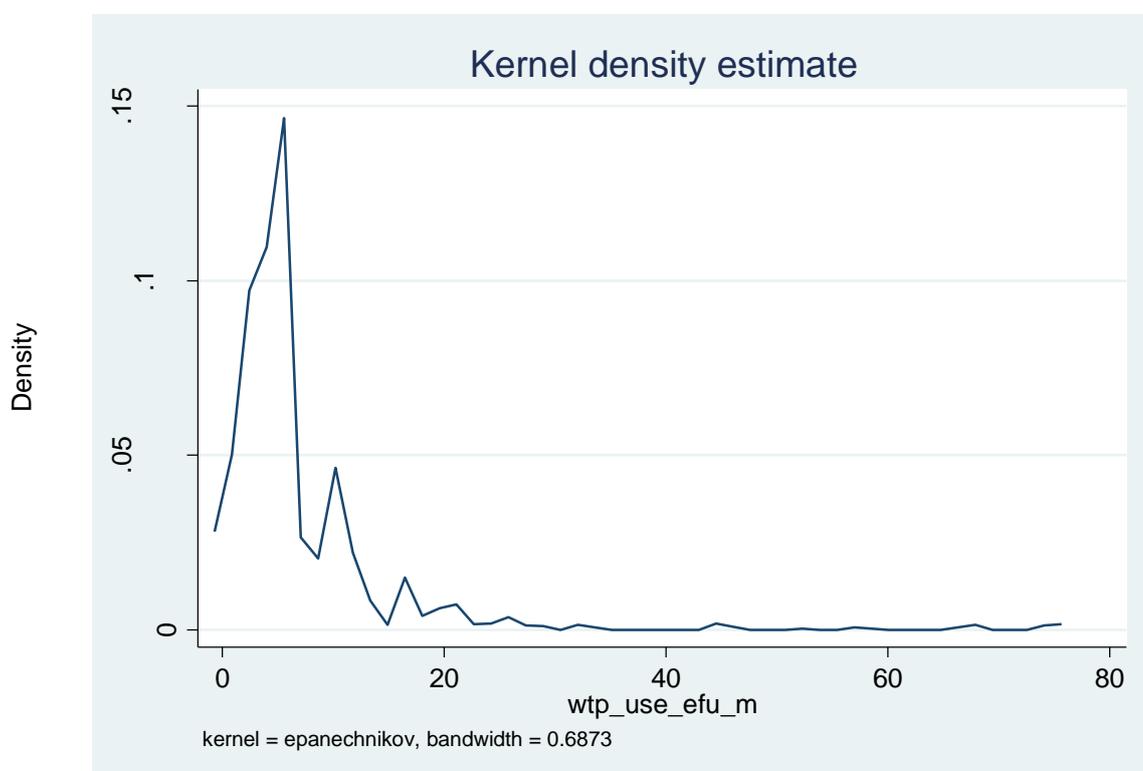
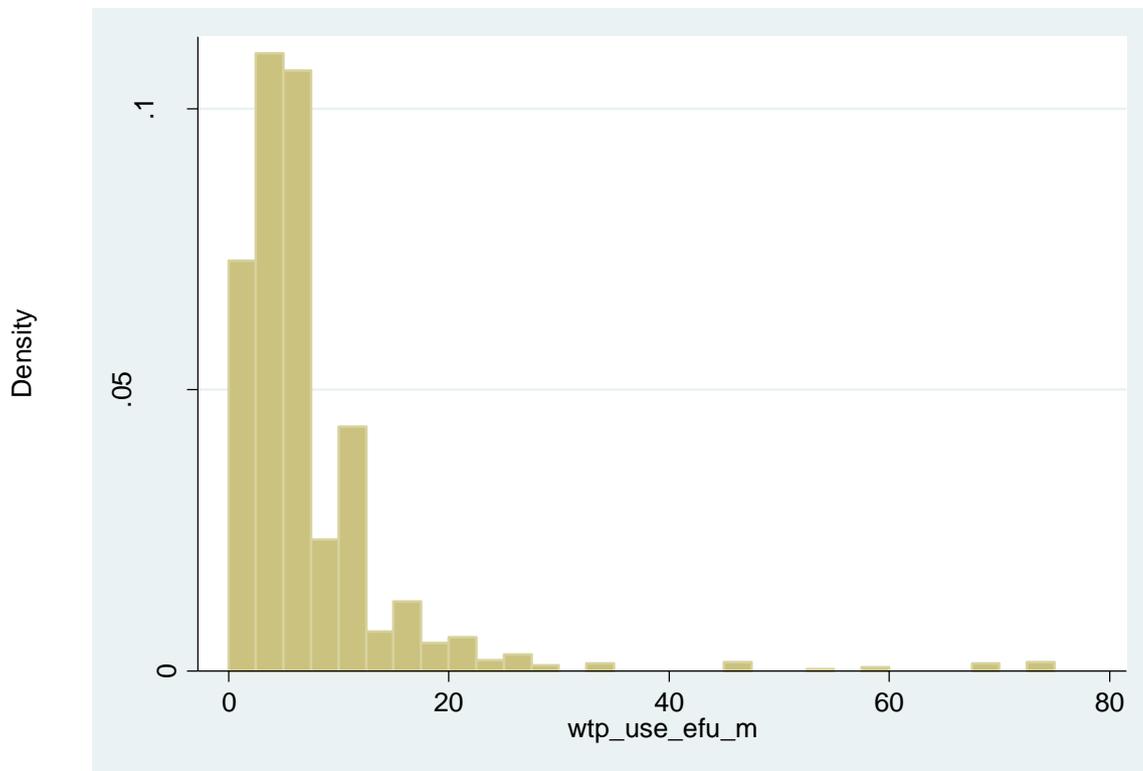
## A2.7 National Railway Museum – WTP distribution for museum non-visitors



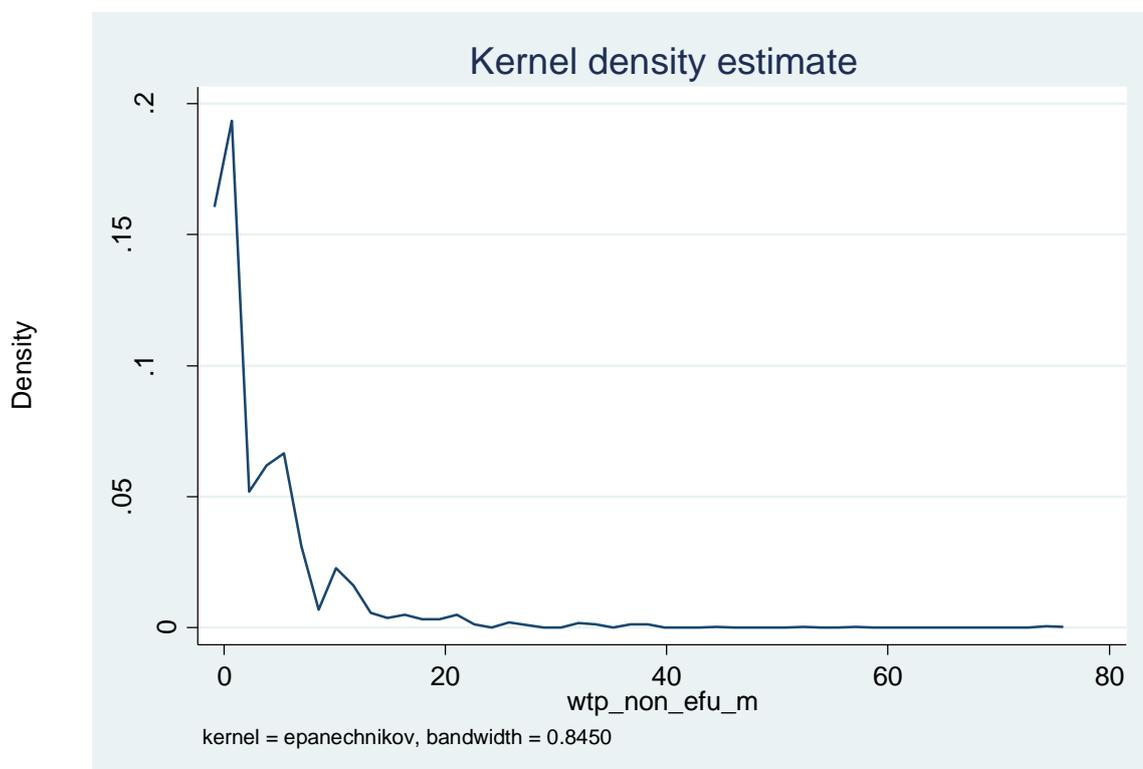
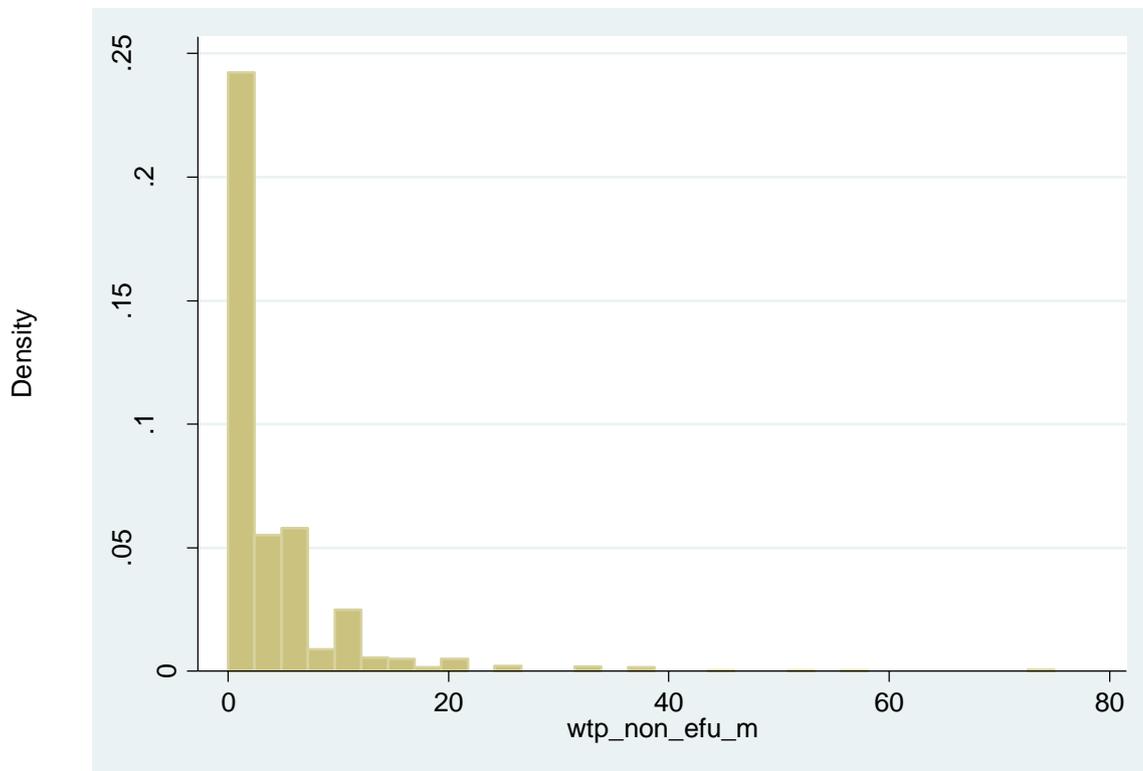
## A2.8 Ashmolean Museum – WTP distribution for museum non-visitors



## A2.9 Pooled model – WTP distribution for museum visitors



## A2.10 Pooled model – WTP distribution for museum non-visitors



## A3 Sensitivity analysis: Certainty questions

### A3.1 Museum visitors

As discussed in Section **Error! Reference source not found.**, the effect of certainty on WTP has been found in some previous studies to be negative, suggesting that it is easier to be certain about paying small amounts (Bedate et al. 2009). However, this may not always be the case: it may equally be that those responding with a large amount have thought more deeply about the true value of the change being proposed, and that their higher value responses are therefore more considered and thoughtful than the lower value responses of others.

Table A3.1 shows the mean level of certainty given by museum visitors related to their stated willingness to pay (measured as a percentage). The average level of certainty across the pooled museum visitor sample was 81%, with the highest levels of certainty recorded for the Ashmolean and NRM (83%) and lowest certainty for the Great North (75%).

*Table A3.1 - Museum visitor: Level of respondent certainty of their actual willingness to pay (%)*

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum	Pooled
Certainty (%)	75.0	81.3	82.8	83.0	80.8

*Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by visitor weights.*

Table A3.2 shows the association between certainty (measured as a percentage) and mean WTP for museum visitors. Note that we test for the effects of certainty only on those respondents who were presented with the payment card, since those who indicated that they were not willing to pay in principle were not presented with either the certainty question or the payment card.

Although the association between certainty and mean WTP is not significant within the pooled museum visitor regression, we find that for two museums (NRM and Ashmolean), certainty is significantly and positively associated with higher mean use WTP among museum visitors. As hypothesized above, it may be that those responding with a large amount have thought more deeply about the true value of the change being proposed, and that their higher value responses are therefore more considered and thoughtful than the lower value responses of others.

**Table A3.2 - Museum visitor: Impact of respondent certainty that they would pay the stated amount on willingness to pay**

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum	Pooled
Certainty (%)	-0.003	-0.002	0.029**	0.046*	0.010
Male	0.000	0.000	0.000	0.000	0.000
Female	3.620**	0.124	-1.277*	-2.423	-0.445
Log age, using age midpoints	-1.804	-1.531*	-1.156	-1.609	-1.133*
Log income, using income midpoints	3.767**	2.131***	1.638***	0.919	1.851***
BAME	-1.993	0.178	-0.245	2.830	0.239
Degree and above	-0.944	0.702	-0.266	1.851	0.204
Married, civil partner, cohabiting	-2.778*	1.327**	-0.724	2.314*	0.192
Employed (FT, PT, SE)	1.760	-0.141	0.890	-0.374	0.505
Dependent children	3.806***	1.218	-0.220	3.698**	1.224**
Good or excellent health (self-reported scale 1-5)	0.361	0.504	0.697	-0.933	0.142
Resident of city of museum	3.067*	0.603	8.458**	-0.857	1.432*
Constant	-26.266*	-12.491*	-8.094	-3.356	-10.209**
Observations	226	246	350	218	1040

Notes: \*\*\* significance at <1%; \*\* significance at <5%; \* significance at <10%. Reference group: for gender ref = male; for BAME ref = white; for education Degree and above ref = all qualifications under Degree; for Married, civil partner, cohabiting ref = other marital status; Employed (FT, PT, SE) ref = other employment status; for Dependent children ref = no children; for good-excellent health ref = poor/fair health; for London resident ref = rest of England; for Familiar with information on museum: Very/Extremely ref = not at all – moderately familiar. Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by visitor weights. Notes: Gross annual household income; averages computed using the midpoints of the income and age categories. Heteroskedasticity-robust standard errors. Controls for entreaty script (not shown).

### A3.2 Museum non-visitors

Table A4.3 shows the mean level of certainty given by museum non-visitors related to their stated willingness to pay (measured as a percentage). The average level of certainty across the pooled museum non-visitor sample was 66%, which is lower than the certainty recorded in the pooled museum visitor sample (81%). The highest levels

of certainty were recorded for the World Museum (72%) and lowest certainty for the NRM (61%).

*Table A3.3 Museum non-visitor: Level of respondent certainty of their actual willingness to pay*

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum	Pooled
Certainty (%)	67.2	72.2	60.7	62.2	65.7

*Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by gen. pop. weights (age and gender).*

Table A3.4 shows the association between certainty (measured as a percentage) and mean WTP for museum non-visitors. Note that we test for the effects of certainty only on those respondents who were presented with the payment card, since those who indicated that they were not willing to pay in principle were not presented with either the certainty question or the payment card.

We find that certainty is significantly and positively associated with mean non-use WTP within the pooled non-visitor regression. Certainty is also significantly and positively associated with mean non-use WTP for three museums (World Museum; NRM; Ashmolean).

The positive association between certainty and mean non-use WTP among museum non-visitors may be caused by those responding with a large amount considering more deeply the true value of the good being valued, and that their higher value responses are therefore more considered and thoughtful than the lower value responses of others.

*Table A3.4 Museum non-visitor: Impact of respondent certainty that they would pay the stated amount on willingness to pay*

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum	Pooled
Certainty (%)	0.009	0.048***	0.059**	0.040*	0.039***
Female	0.165	0.844	-0.190	1.146	0.774
Log age, using age midpoints	1.205*	1.813	-2.266	-1.329	-0.341
Log income, using income midpoints	-0.417	0.808	1.185	2.854***	1.020**
BAME	0.073	0.328	-0.823	-1.063	0.138
Degree and above	1.008	-0.528	-1.771	1.107	-0.062
Married, civil partner, cohabiting	0.198	-2.323**	-0.105	0.554	-0.001
Employed (FT, PT, SE)	0.530	1.618*	0.652	0.160	1.011*

Dependent children	1.662**	-0.211	0.031	1.358	0.564
Good or excellent health (self-reported scale 1-5)	-0.772	0.770	0.841	-3.052*	-0.754
Resident of city of museum	1.459	2.676*	2.103	8.805**	5.089***
Constant	2.943	-12.195	0.643	-17.819*	-5.423
Observations	193	192	167	202	754

Notes: \*\*\* significance at <1%; \*\* significance at <5%; \* significance at <10%. Reference group: for gender ref = male; for BAME ref = white; for education Degree and above ref = all qualifications under Degree; for Married, civil partner, cohabiting ref = other marital status; Employed (FT, PT, SE) ref = other employment status; for Dependent children ref = no children; for good-excellent health ref = poor/fair health; for London resident ref = rest of England; for Familiar with information on museum: Very/Extremely ref = not at all – moderately familiar. Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by gen. pop. weights (age and gender). Notes: Gross annual household income; averages computed using the midpoints of the income and age categories. Heteroskedasticity-robust standard errors. Controls for entreaty script (not shown).

## A4 - WTP follow up responses

*Table A4.1 – Reasons given for WTP by museum visitors*

Categories	Base (%)	Cheap (%)	Oath (%)	Comb (%)
Don't know	0.77%	0.65%	1.74%	0.71%
I don't believe that I would really have to pay	1.15%	4.19%	1.39%	1.43%
I enjoyed my visit to the Ashmolean Museum	5.77%	3.23%	3.47%	5.71%
I enjoyed my visit to the Great North Museum	5.38%	7.42%	4.51%	7.50%
I enjoyed my visit to the National Railway Museum	5.77%	9.35%	7.99%	8.93%
I enjoyed my visit to the World Museum	8.08%	4.19%	5.56%	5.71%
I may want to visit the Ashmolean Museum in the future	2.31%	2.58%	1.39%	1.07%
I may want to visit the Great North Museum in the future	1.54%	2.90%	3.13%	3.93%
I may want to visit the National Railway Museum in the future	3.08%	3.23%	3.47%	2.50%
I may want to visit the World Museum in the future	1.15%	1.94%	3.13%	4.29%
I think visitor enjoyment and or the presentation of the collections could be improved if the Ashmolean Museum had more funds	1.15%	1.29%	2.08%	2.50%
I think visitor enjoyment and or the presentation of the collections could be improved if the Great North Museum had more funds	1.92%	1.29%	2.43%	3.57%
I think visitor enjoyment and or the presentation of the collections could be improved if the National Railway Museum had more funds	1.54%	3.55%	2.43%	3.21%
I think visitor enjoyment and or the presentation of the collections could be improved if the World Museum had more funds	2.69%	2.90%	2.78%	3.21%
My willingness to pay is not just for visiting the Ashmolean Museum, but also an expression of my support for all the conservation and scientific research work that they do	8.46%	5.16%	9.03%	5.71%
My willingness to pay is not just for visiting the Great North Museum, but also an expression of my support for all the conservation and scientific research work that they do	4.62%	4.84%	6.60%	5.00%
My willingness to pay is not just for visiting the National Railway Museum, but also an expression of my support for all the conservation and scientific research work that they do	9.62%	8.71%	8.68%	8.21%
My willingness to pay is not just for visiting the World Museum, but also an expression of my support for all the conservation and scientific research work that they do	6.15%	7.74%	7.64%	5.36%
The Ashmolean Museum is an important site of cultural heritage that should be protected	5.00%	4.84%	4.17%	3.93%
The Great North Museum is an important site of cultural heritage that should be protected	8.85%	4.84%	4.86%	1.43%
The National Railway Museum is an important site of cultural heritage that should be protected	10.38%	8.39%	9.38%	10.36%
The World Museum is an important site of cultural heritage that should be protected	4.23%	5.48%	3.47%	4.64%
Other (please specify)	0.38%	1.29%	0.69%	1.07%
<b>Total</b>	<b>260</b>	<b>310</b>	<b>288</b>	<b>280</b>

Table A4.2 – Reasons given for WTP by museum non-visitors

Categories	Base (%)	Cheap (%)	Oath (%)	Comb (%)
Don't know	3.14%	5.43%	3.68%	5.73%
I don't believe that I would really have to pay	2.62%	2.71%	4.21%	2.08%
I have an interest in history and want to make sure the museum and its collections are adequately conserved and maintained, and presented in the best possible way	26.70%	22.17%	23.16%	18.75%
I have enjoyed visiting Ashmolean Museum in the past	1.57%	0.90%	0.53%	1.56%
I have enjoyed visiting Great North Museum in the past	1.05%	2.26%	1.58%	0.52%
I have enjoyed visiting National Railway Museum in the past	3.14%	0.90%	0.53%	2.60%
I have enjoyed visiting World Museum in the past	1.05%	1.81%	0.53%	1.56%
I may want to visit the Ashmolean Museum in the future	4.19%	3.62%	7.89%	7.29%
I may want to visit the Great North Museum in the future	4.71%	7.24%	4.74%	5.73%
I may want to visit the National Railway Museum in the future	4.71%	3.17%	3.68%	4.69%
I may want to visit the World Museum in the future	7.33%	6.79%	4.74%	5.21%
My willingness to pay is not an expression of support for Ashmolean Museum, but of my support for the arts and culture in general	6.28%	2.71%	6.32%	6.25%
My willingness to pay is not an expression of support for Great North Museum, but of my support for the arts and culture in general	4.71%	4.98%	6.32%	4.69%
My willingness to pay is not an expression of support for National Railway Museum, but of my support for the arts and culture in general	3.14%	4.07%	2.11%	4.17%
My willingness to pay is not an expression of support for World Museum, but of my support for the arts and culture in general	7.33%	3.62%	6.84%	3.13%
The museum is an important site of cultural heritage that should be protected	16.23%	27.60%	22.63%	24.48%
Other (please specify)	2.09%	0.00%	0.53%	1.56%
Total	191	221	190	192

Table A4.3 – Reasons given for non-WTP by museum visitors

Categories	Base (%)	Cheap (%)	Oath (%)	Comb (%)
I already answered a question about museum entry fees and did not want to pay another	5.26%	0.00%	5.26%	0.00%
Don't know	0.00%	19.05%	0.00%	0.00%
I am already contributing to museums through my taxes	15.79%	4.76%	0.00%	3.85%
I do not feel confident stating a value that I would be willing to pay in the current uncertain climate	0.00%	4.76%	0.00%	0.00%
I did not enjoy my visit much	0.00%	0.00%	0.00%	3.85%
I cannot afford to pay to visit the Great North Museum	5.26%	0.00%	5.26%	3.85%
I cannot afford to pay to visit the National Railway Museum	0.00%	0.00%	10.53%	0.00%
I don't mind making a donation but I don't want to pay an entry fee	15.79%	23.81%	21.05%	7.69%
I don't plan to ever visit again	0.00%	0.00%	10.53%	3.85%
I need more information to answer this question	0.00%	0.00%	5.26%	7.69%
I have more important things to think about than the National Railway Museum	5.26%	0.00%	0.00%	0.00%
I have more important things to think about than the World Museum	5.26%	0.00%	0.00%	0.00%
I have more important things to think about than the Ashmolean Museum	0.00%	0.00%	0.00%	3.85%
I only visited because it is free, I would not pay to visit	5.26%	23.81%	15.79%	26.92%
I think museums should be free for all, I don't agree with charging for admission	31.58%	23.81%	26.32%	34.62%
Other (please specify)	10.53%	0.00%	0.00%	3.85%
<b>Total</b>	<b>19</b>	<b>21</b>	<b>19</b>	<b>26</b>

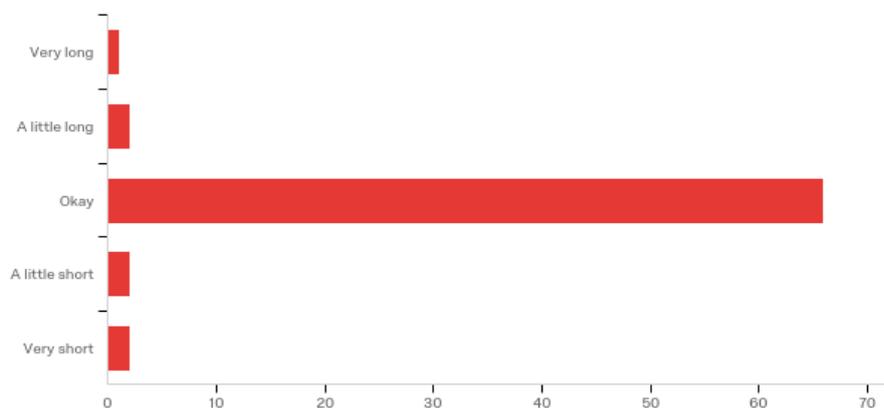
Table A4.4 – Reasons given for non-WTP by museum non-visitors

Categories	Base (%)	Cheap (%)	Oath (%)	Comb (%)
Don't know	1.63%	4.86%	2.54%	2.90%
I already answered a question about museum donations and did not want to pay another	3.26%	2.70%	2.54%	3.38%
I am already contributing to the work of the Ashmolean Museum through my taxes	1.09%	0.54%	0.51%	0.00%
I am already contributing to the work of the Great North Museum through my taxes	0.54%	0.00%	0.51%	0.48%
I am already contributing to the work of the National Railway Museum through my taxes	0.54%	0.00%	0.51%	0.00%
I am already contributing to the work of the World Museum through my taxes	1.63%	1.08%	1.02%	1.93%
I cannot afford to pay to support the work of the Ashmolean Museum	6.52%	10.81%	4.57%	6.28%
I cannot afford to pay to support the work of the Great North Museum	7.07%	7.57%	4.57%	4.35%
I cannot afford to pay to support the work of the National Railway Museum	6.52%	7.57%	7.11%	5.80%
I cannot afford to pay to support the work of the World Museum	6.52%	5.41%	4.57%	4.35%
I do not feel confident stating a value that I would be willing to pay in the current uncertain political climate	3.26%	3.24%	2.54%	3.86%
I don't think I'll ever visit the Ashmolean Museum	5.98%	4.32%	6.09%	7.25%
I don't think I'll ever visit the Great North Museum	3.80%	6.49%	6.09%	4.83%
I don't think I'll ever visit the National Railway Museum	5.43%	2.16%	4.06%	3.38%
I don't think I'll ever visit the World Museum	4.89%	3.78%	5.08%	4.35%
I have more important things to think about than the Ashmolean Museum	1.63%	1.08%	2.54%	5.31%
I have more important things to think about than the Great North Museum	3.80%	2.16%	0.51%	3.86%
I have more important things to think about than the National Railway Museum	2.72%	3.24%	3.05%	1.93%
I have more important things to think about than the World Museum	2.72%	0.54%	2.03%	2.90%
I need more information to answer this question	2.17%	4.32%	3.55%	3.38%
I think the Ashmolean Museum should charge for entry rather than ask for donations	2.72%	4.86%	5.58%	4.35%
I think the Great North Museum should charge for entry rather than ask for donations	5.98%	5.41%	3.55%	2.90%
I think the National Railway Museum should charge for entry rather than ask for donations	3.80%	4.32%	7.11%	6.28%
I think the World Museum should charge for entry rather than ask for donations	5.98%	4.32%	6.09%	3.86%
There are other galleries and museums I would rather support	4.89%	7.03%	8.63%	9.18%
Other (please specify)	4.89%	2.16%	5.08%	2.90%
<b>Total</b>	<b>184</b>	<b>185</b>	<b>197</b>	<b>207</b>

## A5 Cultural Value Benefits Transfer Pilot Report

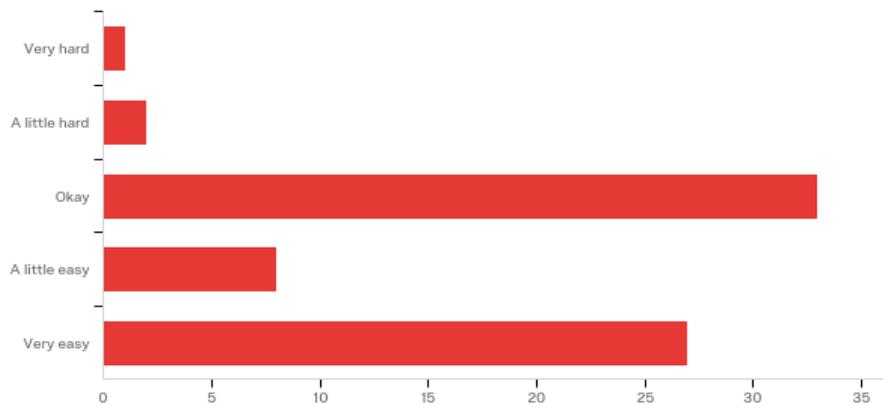
We performed a pilot survey using a nationally representative panel of n=71 on 22<sup>nd</sup> February 2017. Debrief questions are asked to ascertain how well participants are responding to the survey, in order to identify potential problem areas in need of change prior to going into the field. The pilot survey also allows us to test the range of willingness to pay (WTP) values provided in the payment cards, and add additional options if it appears that the payment card is introducing a range bias by not providing sufficient high or low values, following best practice in CV design. The pilot was performed under identical conditions to the full survey.

*Figure A5.1 - Length: Did you find the survey:*



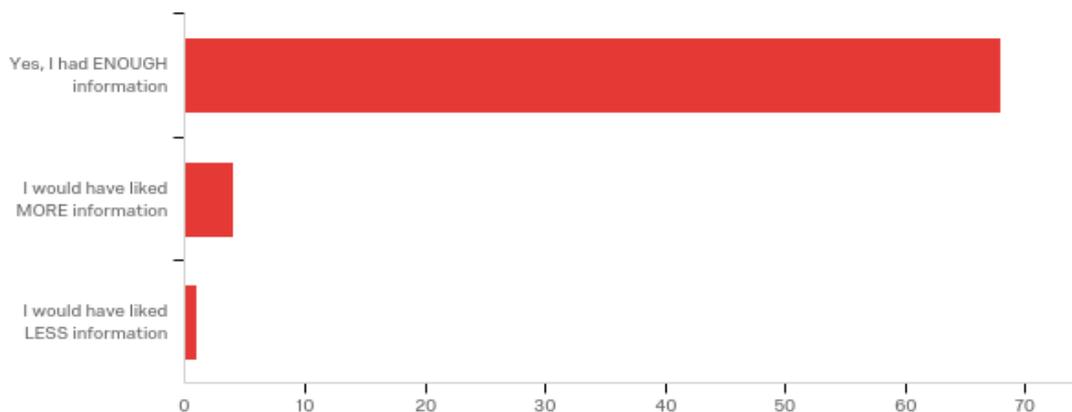
- In terms of **length**, 90% (n=66) found the survey length okay. Only 4% (n=3) found the survey a little long or very long. Four respondents found the survey length to be long or very long.

Figure A5.2 - Difficulty: Did you find the survey:



- In terms of **difficulty**, 46% (n=33) found the survey either okay or easy. 49% (n=35) found the survey easy or very easy. Three respondents found the survey to be hard or very hard.

Figure A5.3 - Information: Did it provide sufficient information on the purpose and aims of the survey?



- 93% of respondents (n=68) indicates that they had **enough information** on the purpose and aims of the survey. 5% (n=4) would have liked more information, and one individual would have liked less information.
- 64% of respondents (n=437) found the **images** of museums helpful for answering this survey.

In terms of **sensitivity**, 3 respondents indicated that they found some of the questions personal or sensitive. These respondents did not provide any further information when provided with an open text box.

## A5.1 Museum visits

**Error! Reference source not found.** shows the numbers of respondents who had heard of any of the four museums surveyed. The highest proportion (74%) had heard of the National Railway Museum (NRM) in York. The lowest proportion (30%) had heard of the World Museum in Liverpool.

*Table A5.1 - Have you heard of any of the four museums?*

Museum	Heard of (%)	Count
The Great North Museum (Newcastle upon Tyne)	31.51%	23
The World Museum (Liverpool)	30.14%	22
The National Railway Museum (York)	73.97%	54
The Ashmolean Museum (Oxford)	41.10%	30

When asked if they had visited any of these museums in their lifetime, 51% (n=37) indicated yes.

Of those 37 people, **Error! Reference source not found.** shows which of these museums they had visited in the past three years (since February 2014).

*Table A5.2 - Museum visits in the past three years*

Museum	Visited (%)	Count
The Great North Museum (Newcastle upon Tyne)	15.07%	11
The World Museum (Liverpool)	6.85%	5
The National Railway Museum (York)	41.10%	30
The Ashmolean Museum (Oxford)	8.22%	6

- The highest number of respondents (41%, n=30) had visited the National Railway Museum in the past three years.
- 15% (n=11) had visited the Great North Museum
- 8% (n=6) had visited the Ashmolean Museum
- The lowest number of previous visitors were recorded for the Liverpool World Museum (7%, n=5)

We note that this figure is based on a small sample of n=73 people, and is therefore not representative of the national population.

The structure of the survey allows respondents to answer up to three WTP questions for museums they have visited. We explore below the incidence of respondents being asked to value one, two, or three museums within the user section of the survey (note that all respondents are asked to value one museum which they have not visited).

- 27 respondents (38%) selected one museum site that they had visited in the past three years.
- Six respondents (8%) selected two museums sites that they had visited in the past 3 years.
- Three respondents (4%) selected three museums sites.

## A5.2 Willingness to Pay

We asked specific questions about the valuation section.

**For those who had visited at least one museum (49%, n=37)** we asked if the scenario of a situation where museums would have to start charging an entry fee to support their activities and secure their long-time future was realistic. **89% (n=33) found the entry fee scenario realistic**, while 11% (n=4) did not know. No respondent indicated that this was unrealistic.

For non-use WTP, we asked all respondents if they found the scenario of paying an annual donation to support the museums realistic. The majority of respondents 66% (n=48) found the entry fee scenario realistic, while 25% (n=18) did not. 10% (n=7) did not know.

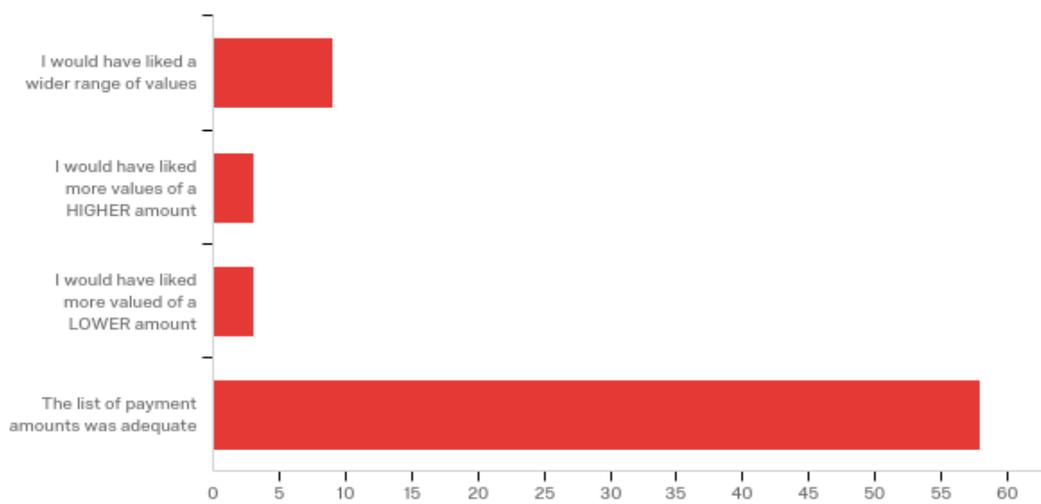
94% indicated that they had **enough information about each of the museums** to answer the survey. 6% (n=4) would have liked more information.

87% (n=59) felt that the survey clearly distinguished the differences between the museums being valued (i.e. the different collections available, museum activities, conservation work etc.). 13% (n=9) did not.

### A5.2.1 Willingness to pay range

We asked if the range of payment amounts shown in the WTP payment ladder was adequate, in terms of the number of values shown and the range of values (either as an entry fee or donation).

Figure A5.4 - WTP Value range



- **79% (n=58) found the WTP range presented in the survey to be adequate.** 12% (n=9) would have liked a wider range of values. Three individuals would have liked more values of a higher amount, and three would have liked more values of a lower amount

We therefore investigate the WTP range elicited during the pilot, to identify any need for additional amounts at the higher or lower range of the payment card.

### A5.2.2 WTP: Entry fee

We first asked respondents whether they were in principle willing to pay an entry fee for any of the four museums (**Error! Reference source not found.**).

In the pilot survey, all respondents were willing to pay in principle an entry fee to access the institution (yes or maybe).

Table A5.3 - WTP Entry fee: Yes/Maybe/No

	Great North Museum		World Museum		National Railway Museum		Ashmolean Museum	
Yes	73%	8	25%	1	80%	24	50%	3
Maybe	27%	3	75%	3	20%	6	50%	3
No	0	0	0	0	0	0	0	0
Total		11		4		30		6

Table A5.4 - WTP Mean Entry fee: Including zero response No in principle

	N	Mean	% Zero
Great North Museum	10	£7.60	0
World Museum	4	£3.13	0
National Railway Museum	30	£5.12	0
Ashmolean Museum	6	£6.17	0

**Mean WTP entry fees from £3.13-£7.60 is within the bound of actual entry fees for paid exhibitions and aligns with previous contingent valuation studies at Natural History Museum and Tate Liverpool.** We also note that this our initial estimate is based only on pilot data of n=50 answers to the WTP question (note, some respondents answered >1 museum WTP question). Note that these values are based on actual WTP bids, and have not been converted to midpoints as they will in the final analysis. Note that the purpose of the pilot is to assess whether the range provided is sufficient. The low sample sizes of the pilot mean that the WTP figures reported above should not be used for any other purposes.

Of those who indicated that they would or would maybe be willing to pay, none then went on to give a zero response.

#### A5.2.3 WTP Entry fee: Range

We tested the range provided in the payment ladder though the pilot survey. Error! Reference source not found. **shows the range of values given by respondents.**

- We see 40 WTP values of £5 or less
- 12 values between £6-£15,

- One value >£15 (£20, Great North)

No open-end responses were provided, suggesting that the range of values provided is adequate for the entry fee WTP task.

These findings lead us to conclude that the WTP payment ladder range is set realistically for the general population (who we would expect to have a lower WTP than the user (visitor and road) samples).

*Table A5.5 - WTP Entry fee: Value range*

Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
£1.00	£1.00	£0.50	£0.50
£1.50	£2.50	£1.50	£1.00
£2.00	£4.00	£2.00	£3.50
£2.50	£5.00	£2.50	£5.00
£3.00		£3.00	£12.00
£5.00		£3.50	£15.00
£6.00		£4.00	
£15.00		£5.00	
£20.00		£8.00	
		£10.00	
		£12.00	
		£15.00	

*Note. Frequency of amount selected not shown here.*

### **Familiarity: Proportion very or extremely familiar with the information provided**

- Great North: 55%
- World Museum: 25%
- NRM: 43%
- Ashmolean: 33%

Lower level of familiarity with World Museum and Ashmolean, which makes sense given that these are smaller museums.

We recorded one false positive response ('I did not believe I would have to pay') for the Great North Museum.

#### A5.2.4 WTP: Donation

We first asked respondents whether they were in principle willing to pay a donation to support the work of the institution in maintaining its collection and ensuring they are presented in the best way the four museums (**Error! Reference source not found.**).

As we would expect, a higher proportion indicated that they were not willing to pay in principle a donation for museums they had not visited.

- Great North: 36% not WTP
- World Museum 32% not WTP
- NRM: 75% not WTP
- Ashmolean: 33% not WTP

Although sample sizes do not permit us to make any further conclusions. There is some suggestion that among the non-user sample, the NRM is valued differently to the other three museums. This finding will be explored further in the main report.

*Table A5.6 - WTP Donation: Yes/Maybe/No*

	Great North Museum		World Museum		National Railway Museum		Ashmolean Museum	
	%	N	%	N	%	N	%	N
Yes	7%	1	23%	5	0%	0	21%	5
Maybe	57%	8	45%	10	25%	3	46%	11
No	36%	5	32%	7	75%	9	33%	8
Total		14		22		12		24

*Table A5.7 - WTP Mean Donation – Those willing to pay in principle*

	N	Mean	% Zero
Great North Museum	8	£4.59	0
World Museum	14	£5.79	0
National Railway Museum	3	£2.83	0

Ashmolean Museum	16	£7.81	0
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**Mean WTP a donation for museums not visited is between £2.83 and £5.79.**

We note that this estimate does not include the recoding of those who were not willing to pay in principle as zero bids, which is standard practice in CV surveys. This was done in the final survey and affects the mean WTP accordingly. We also note that this our initial estimate is based only on pilot data of n=41 respondents who answered the WTP question and that these values are based on actual WTP bids, and have not been converted to midpoints as they are in the final analysis.

Of those who indicated that they would or would maybe be willing to pay, 4% (n=2) then went on to give a zero response.

A5.2.5 WTP Donation: Range

We tested the range provided in the payment ladder though the pilot survey Error! Reference source not found. **shows the range of values given by respondents.**

- 30 WTP values of £5 or less
- 9 values between £6-£15
- Three values above £15: £20, World Museum; £20 and £30 for the Ashmolean.

No open-ended responses were provided, suggesting that the range of values provided is adequate for the entry fee WTP task.

These findings lead us to conclude that the WTP payment ladder range is set realistically for donations.

*Table A5.8 - WTP Donation: Value range*

Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
£0.25	£0.50	£2.00	£0.50
£3.50	£1.00	£3.00	£1.00
£4.00	£2.00	£3.50	£2.00
£5.00	£3.50		£2.50
£10.00	£4.00		£3.00
	£5.00		£4.00

	£7.00		£5.00
	£8.00		£10.00
	£10.00		£15.00
	£11.00		£20.00
	£20.00		£30.00

Note. Frequency of amount selected not shown here.

Table A5.9 - Familiarity: Proportion very or extremely familiar with the information provided

	Very or extremely familiar	Slightly or not at all familiar
Great North Museum:	0%	100%
World Museum:	18%	55%
National Railway Museum:	0%	75%
Ashmolean Museum:	8%	79%

There is low familiarity with all the museums that respondents have not visited, with lower level of familiarity with the Great North and Ashmolean.

We recorded two false positive responses for the donation question ('I did not believe I would have to pay') for the Great North Museum and World Museum.

Open space responses were overall extremely positive about the survey. Of the 14 respondents who provided open-end responses, 9 respondents found the survey 'interesting', 'relevant', or 'important. Three indicated that they hoped the cutting of funding to museums was hypothetical. Two experienced technical problems due to slow internet load time.

## A6 Summary statistics & weights

*Table A0.1 - Museum visitor weights*

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
Male 16-19	1.4	1.9	1.7	N/A
Female 16-19	1.2	1.4	1.1	0.6
Male 20-24	3.0	3.6	1.2	1.7
Female 20-24	0.6	0.9	0.7	0.3
Male 25-29	1.4	1.1	2.3	7.9
Female 25-29	0.6	0.9	1.4	1.2
Male 30-34	0.5	0.8	3.1	4.0
Female 30-34	0.4	0.5	0.6	1.0
Male 35-39	2.0	1.2	1.7	0.7
Female 35-39	0.5	0.7	0.6	0.6
Male 40-44	2.8	1.4	1.4	0.8
Female 40-44	1.4	1.0	1.5	1.0
Male 45-49	1.6	1.0	1.3	1.8
Female 45-49	1.0	0.8	1.1	0.9
Male 50-54	1.0	0.9	1.2	1.5
Female 50-54	0.7	0.6	0.7	0.9
Male 55-59	0.7	1.7	1.0	1.8
Female 55-59	0.5	0.8	0.6	0.5
Male 60-64	0.9	0.8	0.9	1.4
Female 60-64	0.8	1.5	0.7	0.4
Male 65-69	1.8	0.9	0.5	0.8
Female 65-69	0.6	0.9	0.8	0.4
Male 70-74	2.3	1.8	0.7	2.8
Female 70-74	1.1	1.4	1.1	1.0
Male Over 75	N/A	2.6	1.8	2.8
Female Over 75	5.5	N/A	4.3	3.0

**Table A0.2 - Socio economic characteristics, England comparison (UK where England comparison not available)**

	England
Male (%)*	48.2%
Age (mean)*	40.7
Disposable household income (£, mean) **	£28,676 (UK)
Families with dependent children under 16 years (%) ***	42.4% (UK)
Currently married/with partner (%)*	43.3%
University education (%) compared to below university level*	33.0%
In employment (full-time, part-time, self-employed) (%) *	44.5%
Living in London (%) compared to outside London*	12.1%

\*Source: APS 2011-2015.

\*\*ONS data 2012-13 for UK, equivalised using the modified OECD scale.

\*\*\*ONS 2015 data for UK via LFS, as a percentage of all families. Note that visitors to the four museums have on average a higher income than the English population. They are more likely to include members of families with dependent children and more likely to be married or living with a partner.

**Table A0.3 - Museum visitor mean use WTP (entry fee) and sample size (visitor weights applied): Sociodemographic groups**

Socio-demographic characteristics	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)
Age: 50+	£5.37 (N=70)	£4.53 (N=90)	£5.94 (N=202)	£5.57 (N=124)
Age: Under 50	£8.66 (N=194)	£6.74 (N=192)	£7.56 (N=195)	£8.33 (N=128)
Gender: Male	£7.27 (N=98)	£5.47 (N=96)	£7.26 (N=179)	£7.51 (N=70)
Gender: Female	£8.42 (N=166)	£6.41 (N=186)	£6.40 (N=218)	£6.69 (N=182)
Parental status: no dependent children	£5.30 (N=116)	£4.72 (N=154)	£6.27 (N=272)	£5.55 (N=180)
Parental status: dependent children	£10.26 (N=148)	£7.79 (N=128)	£7.90 (N=125)	£10.78 (N=72)

Socio-demographic characteristics	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)
Education: Up to degree level	£7.27 (N=124)	£4.72 (N=129)	£6.18 (N=222)	£5.97 (N=108)
Education: Degree and above	£8.28 (N=138)	£7.33 (N=152)	£7.69 (N=173)	£7.85 (N=144)
Income: >£33,400 per annum	£10.12 (N=145)	£7.33 (N=149)	£7.59 (N=219)	£7.83 (N=146)
Income: <£33,400 per annum	£5.44 (N=97)	£4.40 (N=116)	£5.96 (N=154)	£6.27 (N=94)
Employed (including self-employed and part-time)	£9.53 (N=182)	£6.84 (N=188)	£7.77 (N=228)	£7.54 (N=166)
Unemployed	£2.20 (N=3)	£3.23 (N=8)	£4.45 (N=7)	£7.10 (N=2)
Student	£3.29 (N=19)	£5.94 (N=20)	£4.77 (N=18)	£4.14 (N=14)
Retired	£4.29 (N=26)	£4.14 (N=38)	£5.87 (N=106)	£5.78 (N=51)
Inactive/unpaid family worker	£5.40 (N=32)	£4.35 (N=26)	£4.62 (N=37)	£7.47 (N=19)
West Midlands	£9.44 (N=11)	£4.75 (N=19)	£11.26 (N=28)	£7.30 (N=25)
North West	£7.64 (N=34)	£4.20 (N=116)	£4.94 (N=66)	£5.51 (N=22)
North East	£4.33 (N=75)	£4.69 (N=7)	£5.42 (N=48)	£2.93 (N=6)
Yorkshire and the Humber	£5.03 (N=14)	£4.46 (N=14)	£5.06 (N=63)	£4.60 (N=10)
East Midlands	£8.30 (N=12)	£6.98 (N=24)	£7.26 (N=42)	£9.01 (N=19)
East of England	£5.66 (N=13)	£7.95 (N=11)	£8.31 (N=21)	£8.41 (N=13)
Greater London	£13.46 (N=77)	£10.41 (N=56)	£9.31 (N=59)	£10.42 (N=54)
South East	£6.45 (N=19)	£6.45 (N=27)	£5.86 (N=48)	£5.23 (N=79)

Socio-demographic characteristics	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)
South West	£7.97 (N=9)	£4.28 (N=8)	£6.45 (N=22)	£5.69 (N=24)
Mean WTP	£7.79	£6.01	£6.86	£7.08

*Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by visitor weights. All WTP values are calculated as the midpoint interval between the selected payment amount in the payment card and the next highest response on the payment card (except £0 bids). All WTP figures include non-responses coded as £0. Income groups split by median income level for pooled museum visitor sample. Note: Please note the small number of observations for some of the subgroups. These figures should only be seen as rough indicators.*

**Table A0.4 - Variables used in analysis of determinants of museum visitor use WTP (museum visitor weighted)**

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
Male	Reference group	0.55 (N=264)	0.43 (N=282)	0.53 (N=397)	0.47 (N=252)	0.5 (N=1195)
Female	Dummy variable (1=female; 0=male/other)	0.45 (N=264)	0.57 (N=282)	0.47 (N=397)	0.53 (N=252)	0.5 (N=1195)
Other	Dummy variable (1=Other; 0=Male/Female)	0 (N=264)	0 (N=282)	0 (N=397)	0 (N=252)	0 (N=1195)
Log age, using age midpoint	Log of age (mid=point of intervals)	3.6 (N=264)	3.65 (N=282)	3.78 (N=397)	3.8 (N=252)	3.74 (N=1195)
Log income, using income midpoints	Log of annual household income before tax (mid=point of intervals)	10.38 (N=242)	10.35 (N=265)	10.42 (N=373)	10.49 (N=240)	10.37 (N=1120)
BAME	Dummy variable (1=Black, asian,	0.13 (N=261)	0.17 (N=278)	0.09 (N=394)	0.06 (N=248)	0.11 (N=1181)

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
	minority, ethnic; 0=white)					
Degree and above	Dummy variable (1=educated to degree or above; 0=educated below degree)	0.51 (N=262)	0.49 (N=281)	0.46 (N=395)	0.59 (N=252)	0.48 (N=1190)
Married, civil partner, cohabiting	Dummy variable (1=Married, civil partner, cohabiting; 0=otherwise)	0.62 (N=264)	0.62 (N=282)	0.7 (N=397)	0.65 (N=252)	0.65 (N=1195)
Employed (FT, PT, SE)	Dummy variable (1=full, part, or self-employed; 0=all other employment status)	0.67 (N=264)	0.63 (N=282)	0.61 (N=397)	0.7 (N=252)	0.62 (N=1195)
Dependent children	Dummy variable (1=1 or more dependent children; 0=0 dependent children)	0.5 (N=264)	0.42 (N=282)	0.36 (N=397)	0.29 (N=252)	0.36 (N=1195)
Resident of city of museum	Dummy variable (1=Living in city of museum 0=rest of England)	0.3 (N=261)	0.19 (N=281)	0.05 (N=396)	0.08 (N=252)	0.16 (N=1190)
Log geodesic distance from household to museum (miles)	Log distance, measured as shortest path between household postcode and museum (miles)	4.36 (N=246)	3.98 (N=270)	4.58 (N=388)	3.87 (N=252)	4.07 (N=1156)
Num visits museum in	Continuous variable: 0-10+	3.92 (N=262)	3.46 (N=282)	3.44 (N=396)	3.36 (N=252)	3.57 (N=1192)

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
lifetime (visitor only)						
Last visit to museum=2014 (visitor only)	Reference group	0.16 (N=264)	0.11 (N=282)	0.23 (N=397)	0.27 (N=252)	0.2 (N=1195)
Last visit to museum=2015 (visitor only)	Last visit to museum=2015; ref = 2014	0.42 (N=264)	0.37 (N=282)	0.36 (N=397)	0.28 (N=252)	0.35 (N=1195)
Last visit to museum=2016 (visitor only)	Last visit to museum=2016; ref = 2014	0.37 (N=264)	0.46 (N=282)	0.37 (N=397)	0.38 (N=252)	0.39 (N=1195)
Last visit to museum=2017 (visitor only)	Last visit to museum=2017; ref = 2014	0.06 (N=264)	0.06 (N=282)	0.05 (N=397)	0.08 (N=252)	0.06 (N=1195)
Visited other cultural institution in past year (eg museum, gallery, historic building)	Dummy variable (1=yes; 0=no)	0.95 (N=264)	0.95 (N=282)	0.91 (N=397)	0.97 (N=252)	0.93 (N=1195)
Member of a cultural, conservation, environmental or other organization	Dummy variable (1=member; 0=member of no organization)	0.4 (N=264)	0.3 (N=282)	0.34 (N=397)	0.35 (N=252)	0.32 (N=1195)
Familiar with information on museum1: Very/Extremely	Dummy variable (1=Familiar or Extremely familiar; 0=not at all, slightly, or moderately familiar)	0.38 (N=264)	0.26 (N=282)	0.39 (N=397)	0.29 (N=252)	0.31 (N=1195)
Arts, culture & heritage are a fiscal priority	Dummy variable (1=Is a priority; 0=otherwise)	0.36 (N=264)	0.37 (N=282)	0.37 (N=397)	0.37 (N=252)	0.36 (N=1195)

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
Preserving museums for current and future generations is important (agree/strongly agree)	Dummy variable (1=Agree/Strongly agree; 0=strongly disagree, disagree, neither)	0.81 (N=264)	0.8 (N=282)	0.85 (N=397)	0.86 (N=252)	0.83 (N=1195)

Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by visitor weights. Note: Gross annual household income; averages computed using the midpoints of the income and age categories.

Table A0.5 - Weights for museum non-visitors

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
Male 16-19	1.5	1.9	2.1	1.3
Female 16-19	1.1	1.2	1.1	1.3
Male 20-24	1.2	1.6	1.1	1.2
Female 20-24	1.1	1.0	0.6	1.2
Male 25-29	4.1	4.1	7.5	1.8
Female 25-29	0.9	1.0	1.1	0.9
Male 30-34	2.3	1.8	0.7	1.2
Female 30-34	0.8	0.7	0.6	0.5
Male 35-39	1.1	1.2	1.5	1.1
Female 35-39	0.6	0.6	0.9	0.6
Male 40-44	1.2	0.8	3.6	1.7
Female 40-44	0.9	1.1	0.8	1.0
Male 45-49	0.9	2.1	1.0	1.2
Female 45-49	0.8	1.3	1.2	1.0

Male 50-54	1.4	0.9	0.9	1.1
Female 50-54	0.7	0.7	1.2	0.7
Male 55-59	1.1	1.0	1.4	0.9
Female 55-59	0.7	0.8	0.7	0.6
Male 60-64	1.1	0.9	1.6	1.2
Female 60-64	0.5	0.7	0.5	0.9
Male 65-69	0.5	0.6	1.7	0.7
Female 65-69	0.5	0.7	0.4	0.8
Male 70-74	1.4	0.4	0.8	0.5
Female 70-74	0.9	0.7	0.5	1.1
Male Over 75	3.3	1.5	7.4	2.9
Female Over 75	7.5	3.2	5.1	6.1

*Table A0.6 - Museum non-visitor mean non-use WTP (donation): Sociodemographic groups*

Socio-demographic characteristics	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
Age: 50+	£2.42 (N=184)	£2.83 (N=202)	£2.44 (N=164)	£2.17 (N=188)
Age: Under 50	£3.09 (N=206)	£4.39 (N=182)	£3.99 (N=188)	£5.57 (N=230)
Gender: Male	£2.62 (N=151)	£3.46 (N=168)	£4.04 (N=123)	£3.82 (N=180)
Gender: Female	£2.96 (N=239)	£3.92 (N=216)	£2.60 (N=229)	£4.29 (N=238)
Parental status: no dependent children	£2.34 (N=281)	£3.23 (N=285)	£2.98 (N=254)	£2.43 (N=285)
Parental status: dependent children	£3.93 (N=109)	£4.96 (N=99)	£4.26 (N=98)	£7.51 (N=133)
Education: Up to degree level	£2.35 (N=244)	£3.09 (N=215)	£3.30 (N=207)	£2.78 (N=268)
Education: Degree and above	£3.59 (N=143)	£4.50 (N=166)	£3.33 (N=144)	£6.42 (N=148)
Income: >£33,400 per annum	£3.14 (N=184)	£4.95 (N=172)	£4.17 (N=160)	£6.77 (N=181)
Income: <£33,400 per annum	£2.38 (N=183)	£3.06 (N=183)	£2.90 (N=171)	£2.11 (N=205)
Employed (including self-employed and part-time)	£3.11 (N=197)	£4.53 (N=212)	£4.21 (N=192)	£5.57 (N=239)

Socio-demographic characteristics	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
Unemployed	£1.10 (N=17)	£2.87 (N=15)	£2.24 (N=17)	£3.20 (N=21)
Student	£2.58 (N=25)	£2.93 (N=19)	£2.63 (N=26)	£2.77 (N=24)
Retired	£2.48 (N=92)	£2.84 (N=99)	£2.14 (N=81)	£1.50 (N=81)
Inactive/unpaid family worker	£2.94 (N=58)	£1.76 (N=39)	£2.67 (N=35)	£3.03 (N=51)
West Midlands	£1.75 (N=41)	£3.47 (N=30)	£2.24 (N=35)	£4.44 (N=48)
North West	£2.85 (N=68)	£3.94 (N=45)	£2.98 (N=59)	£1.65 (N=69)
North East	£3.17 (N=14)	£3.72 (N=38)	£2.02 (N=29)	£3.85 (N=36)
Yorkshire and the Humber	£3.04 (N=32)	£4.80 (N=29)	£7.17 (N=18)	£3.45 (N=37)
East Midlands	£1.41 (N=29)	£1.30 (N=21)	£3.36 (N=31)	£4.28 (N=48)
East of England	£3.75 (N=13)	£2.53 (N=24)	£0.83 (N=9)	£5.73 (N=15)
Greater London	£3.64 (N=71)	£5.11 (N=76)	£4.93 (N=69)	£7.27 (N=75)
South East	£3.51 (N=80)	£3.51 (N=73)	£3.70 (N=69)	£2.58 (N=58)
South West	£1.65 (N=42)	£2.90 (N=48)	£0.69 (N=33)	£1.97 (N=32)
Mean WTP	£2.79	£3.70	£3.30	£4.06

*Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by gen. pop. weights (age and gender). Note: All WTP values are calculated as the midpoint interval between the selected payment amount in the payment card and the next highest response on the payment card (except £0 bids). All WTP figures include non-responses coded as £0. Please note the small number of observations for some of the subgroups. These figures should only be seen as rough indicators.*

Table A0.7 - Variables used in analysis of determinants of museum non-visitor non-use WTP

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
Male	Reference group	0.49 (N=390)	0.49 (N=384)	0.49 (N=352)	0.49 (N=418)	0.49 (N=1544)
Female	Dummy variable (1=female; 0=male/other)	0.51 (N=390)	0.51 (N=384)	0.51 (N=352)	0.51 (N=418)	0.51 (N=1544)
Other	Dummy variable (1=Other; 0=Male/Female)	0 (N=390)	0 (N=384)	0 (N=352)	0 (N=418)	0 (N=1544)
Log age, using age midpoint	Log of age (mid=point of intervals)	3.77 (N=390)	3.77 (N=384)	3.77 (N=352)	3.77 (N=418)	3.77 (N=1544)
Log income, using income midpoints	Log of annual household income before tax (mid=point of intervals)	10.18 (N=367)	10.24 (N=355)	10.11 (N=331)	10.15 (N=386)	10.17 (N=1439)
BAME	Dummy variable (1=Black, Asian, minority, ethnic; 0=white)	0.13 (N=385)	0.09 (N=382)	0.13 (N=348)	0.15 (N=413)	0.12 (N=1528)
Degree and above	Dummy variable (1=educated to degree or above; 0=educated below degree)	0.37 (N=387)	0.44 (N=381)	0.4 (N=351)	0.35 (N=416)	0.39 (N=1535)
Married, civil partner, cohabiting	Dummy variable (1=Married, civil partner, cohabiting; 0=otherwise)	0.56 (N=390)	0.61 (N=384)	0.52 (N=352)	0.57 (N=418)	0.57 (N=1544)
Employed (FT, PT, SE)	Dummy variable (1=full, part, or self-employed; 0=all other)	0.51 (N=390)	0.56 (N=384)	0.53 (N=352)	0.55 (N=418)	0.54 (N=1544)

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
	employment status)					
Dependent children	Dummy variable (1=1 or more dependent children; 0=0 dependent children)	0.28 (N=390)	0.27 (N=384)	0.25 (N=352)	0.32 (N=418)	0.28 (N=1544)
Resident of city of museum	Dummy variable (1=Living in city of museum 0=rest of England)	0.02 (N=388)	0.05 (N=384)	0.03 (N=352)	0.06 (N=416)	0.04 (N=1540)
Log geodesic distance from household to museum (miles)	Log distance, measured as shortest path between household postcode and museum (miles)	5.22 (N=383)	4.77 (N=374)	4.78 (N=347)	4.43 (N=401)	4.79 (N=1505)
Visited other cultural institution in past year (egg museum, gallery, historic building)	Dummy variable (1=yes; 0=no)	0.75 (N=390)	0.8 (N=384)	0.69 (N=352)	0.76 (N=418)	0.75 (N=1544)
Member of a cultural, conservation, environmental or other organization	Dummy variable (1=member; 0=member of no organization)	0.21 (N=390)	0.28 (N=384)	0.24 (N=352)	0.25 (N=418)	0.24 (N=1544)
Familiar with information on museum1: Very/Extremely	Dummy variable (1=Familiar or Extremely familiar; 0=not at all, slightly, or	0.03 (N=390)	0.09 (N=384)	0.08 (N=352)	0.07 (N=418)	0.07 (N=1544)

	Definition	Great North Museum (mean, N)	World Museum (mean, N)	National Railway Museum (mean, N)	Ashmolean Museum (mean, N)	Pooled (mean, N)
	moderately familiar)					
Arts, culture & heritage are a fiscal priority	Dummy variable (1=Is a priority; 0=otherwise)	0.28 (N=390)	0.27 (N=384)	0.33 (N=352)	0.29 (N=418)	0.29 (N=1544)
Preserving museums for current and future generations is important (agree/strongly agree)	Dummy variable (1=Agree/Strongly agree; 0=strongly disagree, disagree, neither)	0.73 (N=390)	0.8 (N=384)	0.71 (N=352)	0.73 (N=418)	0.74 (N=1544)
Respondent answered only non-use WTP	Dummy variable (1= Respondent answered only non-use WTP; 0=respondent answered one or more use WTP previously in the survey)	0.45 (N=390)	0.39 (N=384)	0.57 (N=352)	0.43 (N=418)	0.46 (N=1544)

*Sample restricted to residents in England aged 16 and over. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by gen. pop. weights (age and gender). Notes: Gross annual household income; averages computed using the midpoints of the income and age categories.*

## A7 - Analysis of order effects

Order effects are defined as the possible change in responses to a given question due to the positioning of that question relative to others in the survey instrument (Powe and Bateman 2003). Sites are presented randomly but their order is recorded for the purpose of sensitivity analysis. We can test for order effects where respondents answer more than one museum visitor WTP question.

We test for the presence of order effects by comparing mean WTP associated with the order in which museums were presented within the survey (first, second, or third).

Note that is necessary to constrain the analysis of order effects based on the total number of WTP questions answered per individual. We are not interested in testing the effect of the total number of WTP questions answered, since this is dependent on the

number of museums (out of the four) that the respondent has visited. The count of total museums valued is therefore an indicator of their level of cultural engagement, which is a strong theoretical driver of WTP (Noonan 2003).

Therefore, we restrict the testing of order effects within subgroups of those individuals who had visited the same number of museums (i.e. among respondents who visited and valued 3 museums, we look at whether the order in which they were presented was associated with higher/lower WTP).

By testing for order effects within subgroups of respondents who had visited (and valued) the same total number of museums, we can isolate the association between WTP and question order. This modelling is designed to exclude the effect of self-selection, whereby those who have visited more museums in the past 3 years (and therefore are assumed to be more engaged in cultural institutions) are expected to have higher WTP values.

Note that respondents who answered n=1 museum visitor WTP questions are excluded from analysis of order effects on museum visitor WTP.

In the case of museum non-use values, it is not possible to distinguish between the number of museums visited and the order in which the non-use non-visited museum was presented, given that the non-visited museum is always valued last in the sequence. Therefore, the order in which a non-visited museum is viewed corresponds directly to the total number of museums visited. As outlined above, we take total number of museums visited as an indicator of cultural engagement. For this reason, we test for differences in mean non-use WTP between those who previously answered any number of use WTP questions, compared to a reference group of those who did not answer any use WTP questions (and therefore answered only the *non-use WTP only*, without the presence of any prior order effects). We note, however, that this is likely to capture selection of respondents with low cultural engagement into the *non-use WTP only* sample. Prior theoretical expectations would anticipate that the WTP of those who are less culturally engaged would be lower on average (Noonan 2003).

#### A7.1 Museum visitor WTP: Tests of order effects

We test for order effecting using OLS models regressing mean WTP on the order in which respondents answered the WTP question, after restricting our sample by the total number of WTP questions answered.

For museum visitors, we ran 8 models in total. For each of the four museums, we regressed question order onto WTP for those who visited and valued a total of two and a total of three museums.

##### *Equation 1*

$$WTP_i = \alpha + \beta_1 Ord_i + \varepsilon_i$$

where  $WTP_i$  is the amount the individual  $i$  has stated they are willing to pay,  $\alpha$  is the deterministic factor and  $\varepsilon$  is the error term containing unobserved factors that determine willingness to pay. In  $Ord_i$  we include dummy variables for the order in which the WTP question was answered in the survey, with one WTP question answered as the reference group.

We test differences in mean WTP associated with question order only on those who were presented with the payment card, as this is where we expect order effects to impact on the WTP bid. The sample for OLS testing is therefore restricted to those willing to pay in principle, but including inconsistent responses.

*Table A7.1 - Museum visitor WTP by order of museum valued within survey (at individual respondent level). Reference group = mean WTP for first order museum valued*

Order	Great North Museum		World Museum		National Railway Museum		Ashmolean Museum	
	n=2	n=3	n=2	n=3	n=2	n=3	n=2	n=3
Order: Second	-3.113*	-5.473	0.961	3.996	1.320	-4.151	-4.953	-1.546
Order: Third		-1.576		2.183		-2.851		8.867
Constant	8.944 ***	12.779 ***	5.443 ***	6.687 ***	5.339 ***	10.765 ***	11.624 **	8.089 ***
Observations	87	49	84	50	160	53	50	35

*Notes: \*\*\* significance at <1%; \*\* significance at <5%; \* significance at <10%. Reference group = mean WTP for first museum valued. Subgroups of respondents restricted to those who had visited the same total number of museums. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Heteroskedasticity-robust standard errors. Sample weighted by visitor weights.*

Within the museum visitor study groups, we find no significant association ( $p < 0.1$ ) between the museum order and mean WTP (Table A7.1). The one exception is the Great North, where museums placed in second order (among the subsample of respondents answering a total of n=2 museum visitor WTP questions) have significantly lower mean WTP compared to the first museum they answered. However, this result is only significant at the 10% level, and we cannot discount the probability of obtaining false positive results when running multiple tests of association.

These results indicate that the order in which museums were presented and WTP elicited is not having a consistent detectable effect on mean WTP. This improves our confidence that the randomised design of the survey (eliciting values for multiple but randomly presented museums from the same respondents within the same survey instrument) is a successful way to overcome potential order effects bias. We note, however, that the available sample sizes for testing the effect of question order among

each of the museum samples is small, which can reduce the probability of identifying significant results.

#### A7.2 Museum non-visitor WTP: Tests of order effects

In the case of non-use WTP, it is not possible to distinguish between the number of museums visited and the order in which the non-use non-visited museum was presented, given that the non-visited museum is always valued last in the sequence. For this reason, it is more relevant to explore the effect of having answered any museum visit use WTP question prior to answering the museum non-visitor non-use WTP question, compared to those who answered only the museum non-visitor non-use WTP question.

We run an OLS model to identify if there are significant differences in mean non-visitor non-use WTP between those who answered one or more prior museum visitor use WTP questions, and those who answered no previous museum visitor use WTP questions (i.e. non-visitor WTP only).

We ran 4 models in total, one for each of the four museums, we regressed non-use WTP only (compared to museum use WTP).

#### Equation 2

$$WTP_i = \alpha + \beta_1 nonuse\_only_i + \varepsilon_i$$

where  $WTP_i$  is the amount the individual  $i$  has stated they are willing to pay,  $\alpha$  is the deterministic factor and  $\varepsilon$  is the error term containing unobserved factors that determine willingness to pay. In  $nonuse\_only_i$  we include a dummy variable for respondents who answered only the non-use WTP question (the reference being the respondents who answered one or more prior museum visitor use WTP questions).

*Table A7.2 Museum non-visitor mean non-use WTP: Respondents who answer only the non-use WTP question (reference = answered one or more prior museum visitor use WTP questions)*

	Great North Museum	World Museum	National Railway Museum	Ashmolean Museum
	b	b	b	b
Non-use WTP only	-2.051***	-2.660***	-2.090**	-3.862***
Constant	3.707***	4.747***	4.489***	5.719***
Observations	390	384	352	418

Notes: \*\*\* significance at <1%; \*\* significance at <5%; \* significance at <10%. Sample excludes speedsters (n=65), and inconsistent follow-up responses at the museum-level ('I do not believe I would have to pay in reality'). Sample weighted by gen. pop. weights (age and gender).

Table A7.2 shows that there is a significant and consistently negative association between mean non-use WTP and respondents answering the non-use WTP question only across all four non-visited museums. The likely explanation for these findings is that a respondent having previously answered (and therefore visited) at least one of the museums operates as an indicator for cultural engagement. Conversely, those who have not visited any of the four museums, and answer the non-use WTP only, are less likely to be culturally engaged. Prior theoretical expectations would anticipate that the WTP of those who are less culturally engaged would be lower, which appears to be confirmed by the results in Table A7.2.