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Arts Council England: Regional Galleries and Theatres Benefit Transfer Report

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Executive Summary

Arts Council England (ACE) recognised a need for the cultural sector to have a standard approach for the economic valuation of arts and cultural institutions and activities. Primary research was conducted to value regional art galleries and theatres across England using Contingent Valuation (CV) methods. To encourage widespread use of these values in the arts and cultural sector a guidance note published alongside this report gives advice on how to apply these values to arts and cultural assets.

The research undertaken in this report provides monetary estimates of the benefits that art galleries and theatres provide to visitors and the local population in England that are consistent with HM Treasury Green Book Social Cost Benefit Analysis (SCBA). It adds significantly to the evidence base around the value of cultural institutions. It contributes to a wider programme led by the Department for Digital, Culture, Media and Sport (DCMS) to develop a Culture and Heritage Capital approach that will look to provide estimates of values for different categories of cultural and heritage assets. It sits alongside the forthcoming DCMS Rapid Evidence Assessment report that summarises all studies valuing cultural and heritage assets since the year 2000, which provides the most comprehensive and up-to-date summary of the valuation literature available, and alongside the report Valuing Culture and Heritage Capital: A framework towards informing decision making (DCMS).

This ACE report was commissioned from Simetrica-Jacobs and the innovation foundation Nesta to enhance the wider arts and cultural sector's knowledge and use of economic techniques to measure the value of cultural activities and institutions. There is increasing recognition of the benefits of applying HM Treasury Green Book endorsed techniques from welfare economics to value the non-market as well as market benefits of culture.[1]

This report represents a major contribution in developing the evidence base for arts and cultural organisations by conducting primary research on the value of different types of cultural institution to derive sufficiently robust values that can be applied to a range of institutions using 'benefit transfer'. **In this report, we also set out initial views on how to use these values in SCBA. However, guidance on the application of non-market values to business cases is in a developmental phase and will be discussed in more detail within the DCMS Culture and Heritage Capital (CHC) framework.**

Benefit Transfer (BT) methods which produce willingness-to-pay values can in principle be applied to comparable categories of cultural institutions in SCBA - reducing the need for additional new and costly primary data collection, survey design and analysis.

The results of this and other research on the non-market value of cultural institutions and heritage assets will be compiled in a **Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture**, to help institutions to estimate the non-market value of their institution. These values can then be used to incorporate a **fuller economic value** of their contribution to society that includes both market values (amount paid in entrance fees, tickets, and ancillary shop and cafe spending) and non-market values (positive values as expressed by visitors and the public through their preferences, either stated in Stated Preference surveys[2] or revealed in other markets, such

1 Crossick and Kaszynska 2016

2 As covered in this report.

as willingness to travel to the institution).[3] This allows institutions to evidence their value within a SCBA framework without the need to perform costly primary data collection.

This research contributes to the Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture, which lists average WTP values for different categories of cultural institutions and heritage sites, including regional museums, historic town centres, historic high streets, and cathedrals. Willingness to Pay, as captured through Stated Preference (SP) surveys such as these, represent monetary estimates of the welfare gain or loss that would be produced in a scenario where the cultural good or service (in this case access to the gallery or the continued existence of the theatre in the city) would be lost. In this way, SP surveys are a tool to elicit welfare values, of which the values produced by this report are consistent with welfare economic theory as outlined in the HM Treasury Green Book.

To add to this Benefit Transfer Table, the WTP values for regional art galleries and regional theatres were estimated through primary data collection. Four sites for each cultural asset category were valued, with a target sample of 200 visitors and 200 non-visitors in each case. Visitors to a site ('users') and people who had never visited that site ('non-users') were the sample population, following UK Government guidance on minimum sample sizes required for Stated Preference surveys.[4] Each person surveyed had an individual maximum willingness-to-pay for the site in question, providing a range of WTP values across the sample. We take an **average WTP value for visitors** and an **average WTP for non-visitors** for each site. Please note that all average WTP/donation values, here and elsewhere, are inclusive of £0 values from people who indicated that they would not be prepared to pay anything.

Thousands of people may visit an art gallery annually. However, as many galleries are free to enter, there may not be a clear monetary measure of the value of a gallery visit. Even if there is an entry fee, this may not cover the value that a gallery is generating. For example, value can be generated by preserving a collection for future generations which may not be accessible to visitors, or by maintaining a landmark cultural institution that is important to its local area, even among non-visitors. The entry fee may also be less than the value someone places on a visit.

Regional theatres have a clearer set of traditional 'market values'. People implicitly show their valuation of theatre productions through the ticket prices they pay. However, while this gives an indication of the values that the public hold for individual productions, it is only a partial picture of the value theatres provide. Those who pay may value maintaining the ongoing presence of the theatre in the city more than any prices they pay to attend. They may also value the wider place-making role of the theatre in the cultural and civic life of the city. As demonstrated by the Covid-19 pandemic, people are negatively affected by the risk of theatres, galleries and other institutions closing, and are willing to pay through donations or allocation of public funding to secure their existence.[5]

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3 These methods are not covered in this report, but detailed, alongside Stated Preference and Wellbeing Valuation methods in the HM Treasury Green Book.

4 Pearce and O'zdemiroglu 2002

5 While traditional theatres can only sell tickets for as many seats as the theatre's capacity, some institutions, such as the National Theatre's Lyttelton Theatre, can stream their performances to an online audience that would only be achieved over several months of performances. From this, the Lyttelton Theatre has raised over £50,000 after asking for donations from virtual viewers during the COVID-19 period.

Often overlooked, regional art galleries and theatres also hold value for those who never have visited or directly benefited from them. Those who never actually visit the cultural institution may still value its presence in the area, whether due to a sense of regional pride, awareness of the benefits that others gain from it, or the option to one day visit it.

Robustness tests are undertaken on all the WTP values obtained. Data from the four regional art galleries and four regional theatres are tested to understand how much potential error could be introduced by taking WTP values estimated for these institutions and applying them to a new business case or SCBA. To do this, we follow best practice in European Union and UK Government studies[6] by 'transfer testing' the WTP values. This gives an estimate of the amount of 'error' that is introduced when transferring one site's value to another. A certain amount of error is expected (since no two sites are the same), but it is recommended that only WTP values transferred with 40% or less levels of transfer error is what is considered acceptable in the research literature (this 40% error threshold is low in relative terms given that transfer errors over 200% are common in the literature and 0% transfer error in like-for-like transfer between institutions is not possible).[7]

To our knowledge our study is one of the first that estimates both use and non-use values for multiple art galleries. Furthermore, it also values additional elements of the theatre organisation (i.e. community outreach programs) in a novel survey approach. Multiple valuations scenarios are presented to respondents per survey: a use valuation scenario for a site they have visited, a follow-up valuation scenario on that site (an expansion scenario in the case of regional galleries and a community outreach scenario for theatres), and a non-use valuation scenario for a site they have not visited. Note that the galleries expansion scenario is a pilot approach. Based on the results, there is a lack of consistency in participants' ability to value marginal changes in the size of a hypothetical gallery expansion. Consequently, we do not recommend the application of gallery expansion WTP values in business cases or SCBA.

The guidance on how to apply non-market values to SCBA and business cases is still under review and in discussion within DCMS. Given that WTP values will in many cases be used in SCBA and business cases and aggregated up to the total relevant sample, we provide some initial recommendations to avoid over-attribution. These include using the more conservative estimate of WTP based on the lower bound of the 95% confidence interval. This 'lower bound WTP' is adopted in response to the ongoing limitations acknowledged in Stated Preference surveys, which commonly lead to over-estimation of values, as it provides a representation of the lowest value that average WTP could reasonably be based on given the distribution of values within the sample.

There is also debate over how and whether non-use values should be elicited, and this may vary in response to the level of hypothetical bias introduced by the payment vehicle. Hypothetical bias can be higher for voluntary donation payment vehicles, since respondents can potentially "free-ride", stating a payment higher than they would pay in reality because they think others will pay. In this study, a donation is used as the most appropriate payment vehicle for gallery non-users, and in response we elicit non-use WTP as a one-off payment as this provides the most conservative estimate of value for aggregation to the national population. This follows

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6 R. Lawton et al. 2018; Fujiwara et al. 2018; S. Mourato et al. 2014

7 Tests to verify that the estimated WTP values have low errors when transferring the value from one institution to another (i.e. Transfer tests) were performed between all four sites. All transfer errors scored below the recommended 40% threshold for simple unit transfer, and for the transfer of visitor values using adjusted and function transfer. This indicates that the WTP values can be considered representative of a comparable site with acceptable margins of error.

Ready and Navrud 2006

recommendations in the literature that a fixed payment period be applied, to avoid the assumption that individuals would pay out of their household budget ad-infinitum for a cultural institution they have never visited, which can lead to inflated present value estimates. However, we note that this could risk an underestimate of non-use value if we are unable to account for the presence of non-use value as an annual 'flow' of value from a cultural and heritage capital perspective. This may be especially the case if non-users in society are charged annually (through taxes) to fund cultural assets. Therefore, there may be an argument for non-use WTP to be elicited as an annual payment (as in the previous museums benefit transfer study) as this can be interpreted as the value of the continued flow of services from a cultural institution. The choice of payment term therefore has implications for how non-use value should be aggregated in SCBA over the evaluation period as an annual value or one-off lifetime payment. This is an important area for future research and development of guidelines for balancing the appropriate level of attribution with how long the flow of cultural services is likely to exist for.

Regional galleries: WTP values

A survey was designed for each of the four galleries (Baltic Centre for Contemporary Art in Gateshead, Lady Lever Art Gallery in Greater Liverpool, Manchester Art Gallery, and the Millennium Gallery in Sheffield). The survey collected WTP values for:

Visitor WTP for access to one of the four galleries a respondent indicated they had visited in the last three years (per visit)

- **Across all four regional galleries surveyed, average willingness-to-pay an entry fee to visit the gallery is £5.40 per person per visit, with a lower bound (95% confidence interval) of £5.01.** This is a realistic figure in line with previous literature and slightly conservative compared to the prices paid at galleries for special exhibitions.[8] The £5.40 figure is based on a 'pooled average' of responses across four regional galleries, rather than a single site, which may represent an outlier. As such, the WTP values for regional galleries can be considered realistic and robust.
- Between the four regional galleries, WTP on average ranges from £4.59 for Manchester Art Gallery in Manchester to £6.02 for Millennium Gallery in Sheffield.
- **Those who live close to the gallery (i.e. local visitors) report a lower willingness-to-pay on average than those who live further away** (i.e. non-local visitors; £4.41 and £6.65 respectively). This finding might reflect respondents' willingness to travel a greater distance to visit a gallery, and thereby a higher value.
- Analysis of survey information on incentives suggests that people's WTP is motivated partly by direct experience, partly by an altruistic desire that others should be able to enjoy the gallery, and by a general 'warm glow' value for culture as a whole. This is a common finding in the research literature and suggests that the reasons that people value cultural sites are complex and multi-faceted. It suggests that more research is needed to fully understand why

8 For example, special event exhibitions at the Baltic Centre for Contemporary Art, Gateshead, can charge between £4-£8.

respondents provide their stated WTP values and what factors affect their cognitive processes when considering the value of the cultural good/service in SP surveys of this kind.

Visitor WTP for expansion of the gallery display-space (one-off donation)

The art galleries contingent valuation survey provides data for visitors' willingness-to-pay for an expansion of the gallery (which would increase display space). It also provides information on why respondents were willing or not willing to pay for an expansion and the change in satisfaction levels before and after the hypothetical change. We would urge caution in applying the differentiated WTP values for different levels of expansion as these values are based on smaller samples, and so less confidence can be placed in them.

The survey proposed the hypothetical scenario of an expansion to the gallery by converting existing backroom storage and collections space into a new gallery floor space. The size of the expansion was randomised with each respondent presented with one of three scenarios: a 10%, 20% or a 30% increase in the size of the gallery display space.

- **Across the four regional galleries, visitors were willing to donate £6.34 per person (as a one-off payment) on average to support an expansion of the gallery, with a more conservative lower bound value of £5.59. Based on the SP survey wording, this should be interpreted as a one-off WTP payment for the life of the asset.** However, the analyst may have grounds for believing that the non-use value of the asset would occur annually over a longer period of time, and if such a justification can be made then they may be able to estimate aggregate non-use Present Value using the value on an annual basis beyond year zero. Considerations around incorporation of non-use values and one-off payments into present value calculations are an important topic for future research within the Culture and Heritage Capital framework. Note also that these are one-off payments and in reality we may expect the annual value to increase as the offer would change, for instance through investments in the quality of the gallery experience.
- Between the four regional galleries, expansion average WTP ranges between £5.62 for the Manchester Art Gallery in Manchester, to £7.25 for the Baltic Centre for Contemporary Art in Gateshead.
- Analysis of respondent incentives data suggests that willingness-to-pay for gallery expansion is motivated by direct enjoyment of the gallery experience and a desire to see art collections presented in a better way.

  Breaking up the expansion scenario into its three randomised scenarios, we see that the 30% expansion scenario had a larger average willingness-to-pay (£7.11), followed by the 10% scenario (£6.32). However, these differences were not significant in regression modelling. We would urge caution in applying the differentiated WTP values for different levels of expansion as these values are based on smaller samples, and so less confidence can be placed in them. This suggests that the expansion WTP question is not able to capture the marginal value of a hypothetical gallery expansion, and that this experimental approach should not be used in SCBA without further refinement. Future research could be conducted to better understand the marginal value of different museum service attributes, including an expansion scenario, in a way that asked respondents to trade off different attributes within a Discrete Choice

Experiment (DCE). Future research may also look to incorporate the survey methodology into audience surveys to estimate the value of a specific proposed expansion to visitors.

Non-visitor WTP: Respondents willingness-to-pay for the continued existence of one of the four galleries they had *not* visited in the past three years (one-off donation)

- **Across the four regional galleries, average WTP a one-off donation for a gallery the survey respondent had not visited is £3.72 per person, with a lower bound of £3.20. Based on the SP survey wording, this should again be interpreted as a one-off non-use WTP payment for the life of the gallery.**
- Non-use WTP donation for the continued existence of the gallery is lower than the visitor WTP for an entry to visit the gallery. While not directly comparable this difference is expected given that non-visitors have not directly experienced the gallery and are paying for the benefits that others receive, as well as the possibility of being able to visit in future (option value).
- Between the four regional galleries, non-use WTP ranges from a low of £3.16 for the Millennium Gallery in Sheffield, and a high of £4.29 for the Manchester Art Gallery as a one-off donation for the life of the assets.
- Analysis of motivation data suggests that those who are willing to donate to non-visited galleries were in part motivated by having the chance to visit in future, while those with a zero WTP indicated that they were not willing to pay because they would not visit the site in the future.

Regional galleries: Transfer tests

- We test how transferable our values are so that they can be applied to WTP values for other regional galleries. **Transfer testing shows gallery WTP values are robust for all forms of benefit transfer.** In the interest of avoiding unnecessary complication and risking an increase in transfer error, we **recommend adopting simple unit transfer** (transferring the pooled average visitor and non-visitor gallery WTP values to comparable galleries) and **adjusted transfer** (adjusting pooled average gallery WTP values by the income differences between the visitors and local non-visitor populations surveyed in the galleries in this report and the income of populations of comparable galleries). Transfer of values into business cases should always be performed with the support of an appropriately qualified professional.

Regional theatres: WTP values

The valuation of theatres presents a challenge as there is no consistent approach in academic valuation research to dealing with the fact that a theatre may be supported by tax-payer funding and payment of tickets to see theatre performances (so called ‘mixed good bias’). This means that the direct use value is captured in the ticket price.

However, the ticket price does not cover all non-use value. Several studies[9] have identified separate user and non-user subsamples and made separate willingness-to-pay calculations for these different user groups. We use this subsample approach from our art galleries survey in our theatres survey, by defining users as respondents who have visited a theatre within the last three years and non-users as respondents who have not visited a theatre within the last three years.

A survey was designed for each of the four theatres (Birmingham Repertory Theatre, Leeds Playhouse, Manchester Royal Exchange Theatre, and Theatre Royal Plymouth) to collect WTP values for:

Visitor WTP to keep the theatre in the city (annual taxes over 3 or 5 years)

To understand how much visitors value the presence of theatres in their respective cities, the survey proposed a hypothetical scenario where the theatre would move to another city and asked respondents for the maximum increase to their taxes (local or national dependent on the respondent's location) they would be prepared to pay to keep the theatre in the city.

- **Across the four regional theatres, willingness-to-pay an increase to taxes to maintain the theatre in its city is £13.10 per household per year on average over a three- or five-year period, with a lower bound of £11.08**. This pooled average WTP from the responses of theatre visitors across all four sites is considerably higher than the visitor WTP for galleries. However, we note that the theatre WTP is an **annual payment to maintain the existence of the theatre in the city**, as compared to a per visit value to access the gallery. The median willingness-to-pay was much lower at £5.50 for all four sites. This shows that the £13.30 average reflects very high valuations among some respondents, but that many people had much lower valuations. Indeed, almost half of respondents (47%) were not prepared to pay anything.
- Between the four regional theatres, visitor WTP ranges between £12.55 for the Manchester Royal Exchange Theatre, and £13.59 for the Birmingham Repertory Theatre.
- Analysis of motivation data suggests that people's WTP is motivated partly by the importance of the theatre as a cultural site, and partly by a general 'warm glow' value for culture as a whole. This is a common finding in the literature, which suggests there are many factors behind why people value cultural sites.
- Splitting respondents up into local visitors and non-local visitors (refer to Table 4.7) we see that **those who live closer to the theatre in question (local visitors) report a lower willingness-to-pay on average (£9.89) than those who live further away (i.e. non-local visitors; £15.84**)[10]. Although speculative, this finding might reflect respondents' willingness to travel a greater distance to visit a theatre, and thereby a higher willingness-to-pay value, compared to local visitors who hold less value for their local theatres. The lower values among local visitors could also be related to other factors such as noise, busy streets and other local

9 See, for example, Chang and Mahadevan (2014) and Thompson et al. (2002).

10 Please note the difference in sample size for theatre visitors and non-visitors (n = 282 and n = 565, respectively), but both sit above the minimum recommended sample size of 200 for testing WTP differences.

disamenities. However, further research is needed to understand the full drivers of non-user WTP.

Note: All average WTP/donation values, here and elsewhere, are inclusive of £0 values from people who indicated that they would not be prepared to pay anything.

Visitor and non-visitor WTP to support the continued provision of community-outreach programmes (one-off payment)

- **Visitor WTP to support theatre Community outreach programmes was £13.62 as a one-off donation over the life of the programme, with a lower bound of £11.49.** This is higher than that found in the 2015 AHRC Cultural Value Project study which estimated that gallery visitors were willing to pay £9.59 (£10.41 in 2020 prices using UK Consumer Price Index) to support the community work of Tate Liverpool.[11] However, the community programmes galleries provide may be quite different from those of theatres which may account for the higher average value across this pooled sample of four theatres. The median willingness-to-pay was £6.50 across all four sites. This shows that the £13.62 average reflects very high valuations among some respondents, but that many people had much lower valuations. Indeed, around half of respondents among both residents and non-residents (52%) were not prepared to pay anything.
- **Theatre non-visitor WTP to support community programmes was £4.57 as a one-off payment, with a lower bound of £3.77.** Theatre visitors held greater values on average than non-visitors which is consistent with those who have visited the theatre and so are more familiar with it valuing its services more highly, even if those service are community outreach activities that do not benefit the visitor directly.
- Between the four regional theatres, visitor WTP for community programmes ranged from £11.47 for Birmingham Rep to £15.22 for Theatre Royal Plymouth.
- Non-visitor WTP for community programmes ranged from £4.11 for Manchester Royal Exchange Theatre to £5.41 for Leeds Playhouse.

Non-visitor WTP: Non visitors' willingness to support one of the four theatres a respondent indicated they had not visited in the past three years (annual tax over 3 or 5 years)

To elicit a non-use value for a theatre, the survey proposed a hypothetical scenario similar to the scenario for visitors which asked respondents to imagine their assigned non-use site theatre was at risk of closure due to a cut in funding and rising costs. Compared to the use valuation scenario, where the increase in household tax was to specifically maintain the theatre's presence in the respective city, the non-use valuation scenario asked for an increase in household tax to maintain the theatre in its current state.

11 Bakhshi et al. 2015

- **Across the four regional theatres, non-visitor WTP to support the running of a theatre they have not visited was £5.01 per year on average as an annual increase in household tax over either a three- or five-year time horizon, with a lower bound of £4.32.**
- Between the four regional theatres, non-visitor WTP ranges between £4.59 for the Birmingham Repertory Theatre to £5.55 for the Theatre Royal Plymouth.
- Analysis of motivations data suggests that those who appreciate arts and culture, are willing to support sites they have not visited, compared to those that support arts and culture because they believe they will visit it.
- When we split respondents by those who live near to their assigned non-use site ('local non-visitors') and those who do not ('non-local non-visitors'), local non-visitors hold greater willingness-to-pay values on average than non-local non-visitors (£5.70 and £4.45), although this difference is not statistically significant. It may be that proximity to the theatre facilitates a greater appreciation of the non-use value (potentially in terms of civic pride) for the theatre's presence in the respective city.

Regional theatres: Transfer tests

- We test if our values can be applied to WTP values for other regional theatres. Benefit transfer tests show theatre WTP values are robust for all forms of benefit transfer. Again, in the interest of avoiding unnecessary complication and risking an increase in transfer error, we recommend adopting simple unit transfer (transferring pooled average visitor and non-visitor theatre WTP values to comparable theatres) and adjusted transfer (adjusting pooled average theatre WTP values by the income differences between the visitors and local non-visitor populations surveyed in the theatre in this report and the income of populations of comparable theatres).

Application to Social Cost Benefit Analysis

This is the first time that a report of this kind has produced a set of average willingness-to-pay values for different elements (use, non-use, expansion and community outreach) of cultural institutions (regional galleries and theatres), surveyed across multiple sites (four institutions in each case), with benefit transfer tests and initial guidance on how to apply these values into SCBA.

Given that the guidance on how to apply non-market values to SCBA and business cases is still under discussion within government, we provide some initial recommendations to avoid over-attribution. These include aggregation based on the more conservative estimate of WTP, the lower bound of the 95% confidence interval, which we report throughout this document. We believe that the lower bound WTP value is more appropriate because it provides a representation of the lowest value that average WTP could reasonably have from the distribution of values within the sample.

To inform the debate on how to apply WTP values for culture and heritage into SCBA, Arts Council England have produced an accompanying Guidance Note: "How to quantify the public benefit of your Museum using Economic Value estimates". This Guidance Note informs the appropriate number of beneficiaries: visitor numbers in the case of visitor WTP, and for non-users, an appropriate local catchment area, which we suggest as households within the

direct Local Authority district where residents have heard of or visited the gallery/theatre in past three years. Although this information may not be readily available in existing datasets, it is likely that institutions already have an idea (and possibly data) on their catchment area.

While there are differences in value between cultural sites, it should be noted that **direct comparisons should not be made across cultural site type.** Art gallery values should not be directly compared to theatre values. This is due to the distinct scenarios that were presented between cultural goods within the surveys. For example, our art galleries survey requested a willingness-to-pay value based upon an individual entry-fee, whereas the theatres survey requested an increase to national or local council taxes per household. Furthermore, the cultural sites are arguably inherently different in their opening hours and access arrangements. Additionally, three of the four art gallery sites had a permanent collection, meaning that this collection is permanently exhibited with only the occasional change of exhibits. Theatres, on the other hand, do not have a permanent performance, but rather present new shows with the occasional touring show returning for a revival performance.

These values are to be incorporated into the Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture to encourage widespread use and further economic knowledge in the arts and cultural sector.

1 Introduction

1.1 Background

Arts Council England (ACE) commissioned Simetrica-Jacobs and the innovation foundation Nesta to enhance its, and the wider arts and cultural sector's, knowledge and use of economic techniques to measure the value of cultural activities and institutions. The results of this project will be used to advise arts and cultural organisations in rigorous application of the techniques and economic values.

There is increasing recognition of the benefits of applying HM Treasury Green Book endorsed techniques from welfare economics to value the non-market as well as market benefits of culture.[12] Importantly, economic valuation techniques have found support within the Department for Digital, Culture, Media and Sport (DCMS) (O'Brien, 2010). This evidence is particularly important where Social Cost Benefit Analysis (SCBA) is required for cultural institutions, but where market values (e.g. entry fees) do not exist or where there is a strong case that the value of a cultural institution is greater than the price people are collectively willing to pay for individual access. Economic valuation approaches can also be used to make internal resource decisions within cultural institutions (the British Library study being a commonly cited example, see Pung et al.[13]).[14]

The Mendoza Review (2017) highlighted the importance of museums having and using consistent and statistically robust methods to measure economic and social impact.[15] It also indicated that local authorities have a role in helping museums to measure their impact in order to deliver the evidence other organisations need. The DCMS Tailored Review (2017) concluded that ACE should be a sector leader in developing a rigorous methodology to assess the outcomes and impact of its funding portfolio (i.e. beyond just measuring inputs and outputs).[16]

This report represents a major contribution in developing the evidence base for arts and cultural organisations by conducting primary research on the value of different types of cultural institution to derive sufficiently robust values that (alongside developing guidance on application to SCBA) can be applied to a range of institutions using 'benefit transfer'.

Benefit Transfer (BT) methods which produce willingness-to-pay (WTP) values can in principle be applied to comparable categories of cultural institutions. Thereby reducing the need for additional new and costly primary data collection, survey design and analysis.

12 Crossick and Kaszynska 2016

13 Pung et al. 2004

14 Empirical research eliciting economic values or benefits associated with access, preservation or restoration of cultural assets dates back to the 1980s when the first contingent valuation studies in the field were conducted (for a review, see Noonan, 2003; Pearce and O'zdemiroglu, 2002). Since then, many studies in the cultural sector have been conducted worldwide investigating a variety of benefits, both tangible and intangible.

15 Mendoza, N. (2017), 'The Mendoza Review: an independent review of museums in England', DCMS.

16 DCMS (2017), 'Tailored Review of Arts Council England'.

Nesta and Simetrica have undertaken previous benefit transfer studies for the DCMS (2018a) and the AHRC (2018b).[17] [18] These studies produced willingness-to-pay (WTP) monetary estimates of use and non-use values for four large regional museums and four historic cities and their associated cathedrals in England, and are collected in the Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture.

The regional museums research showed that these values can be transferred between comparable museum institutions with reasonably low transfer errors (i.e. small differences between the estimated and actual value) and concluded that simple benefit transfer provided sufficient robustness for transfer of WTP values collected in this project to similar museums in England. This finding was subsequently also found in the cathedrals study.

The primary research undertaken as part of this report provides monetary estimates of the benefits that regional art galleries and regional theatres provide to visitors and the local population in England. It adds significantly to the evidence base around the value of cultural institutions in England. It contributes to a wider project funded by the DCMS to develop a database of Economic Values Database for England, which lists average WTP values for different categories of cultural institutions and heritage sites and the DCMS Rapid Evidence Assessment: Culture and Heritage Valuation Studies.

This research was informed by ongoing Art Council England funded capacity-building work to engage sector practitioners, funders and local authorities and stimulate the take up of contingent valuation techniques and the use of the values estimated with this approach. Particularly among cultural organisations seeking public investment and funders, such as local authorities that may be considering SCBA business cases on a regular basis. It sits alongside a Guidance Note which is designed to assist organisations in the application of WTP estimates from the Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture, developed from research work funded by the DCMS, Arts Council England, Historic England and the Arts and Humanities Research Council.

1.2 Economic values for 'non-market' institutions

Thousands of people may visit an art gallery annually. People may value their visit more than any entry fee they pay; indeed, entry is often free. There may also be collections that are stored for future generations, but which are not on display to visitors.

Regional theatres have a clearer set of traditional 'market values'. People express their willingness-to-pay to visit the theatre through the ticket prices they pay. However, while this gives an indication of the values that the public hold for individual productions, it is only a partial picture of the value that theatres provide. Those who pay may value maintaining the ongoing presence of the theatre in the city over and above any ticket price, and value the wider place-making role of the theatre in the cultural or civic life of the city.

17 DCMS (2018a), 'The Economic Value of Culture: A Benefit Transfer Study Executive Summary', Nesta and Simetrica: https://www.gov.uk/government/publications/the-economic-value-of-culture-a-benefit-transfer-study

18 AHRC (2018b), 'The Economic Value of Heritage: A Benefit Transfer Study', Nesta and Simetrica: https://media.nesta.org.uk/documents/Cathedrals_and_Historic_Cities_report_Nesta_and_Simetrica_021018.pdf

Figure 1.1 The Baltic Centre for Contemporary Art in Gateshead. Credit to Lorna Simpson.

Regional galleries and theatres may also hold value for those who never have visited or directly benefited from them. Those who never actually visit the cultural institution may still value its presence in an area, whether due to a sense of regional pride, awareness that others enjoy it, or the option to one day visit it. Although non-use values are acknowledged within the HM Treasury Green Book, traditional economic valuation methods do not account for any research work the institution undertakes, or the education and outreach work provided to the wider community. These values are also not accounted for in the prices people pay. If the gallery offers free entry or if the theatre provides free community outreach programmes aimed at promoting performance arts to individuals who may attend performances less often, the value of this is not covered by visitor revenues, but are arguably valued by the wider community.

Figure 1.2 Community Outreach Programme Singing for People with Dementia at Leeds Playhouse. Credit to Anthony Robling.

The benefits that many arts and cultural institutions provide to society are not financial in nature. These benefits are termed ***non-market goods or services*** because they are not in any sense tradeable and so have no direct financial measures from purchase prices. Consequently, they often are not quantified in SCBA, meaning that they are not fully considered in comparison with more quantifiable economic costs and benefits. An evaluation that focuses only on market prices underestimates the full public value of a cultural institution. There are, however, ways these non-financial (non-market) benefits can be measured, quantified, and understood within an economic framework that aligns with the HM Treasury Green Book principles of social cost benefit analysis. Guidance is currently under development on how non-market value should be included in SCBA and business cases alongside market-based economic impact evaluations.[19]

19 Note, if you have included valuations based on travel cost or house price uplift studies, then you should not add WTP values to SCBA as this would lead to double counting of benefits.

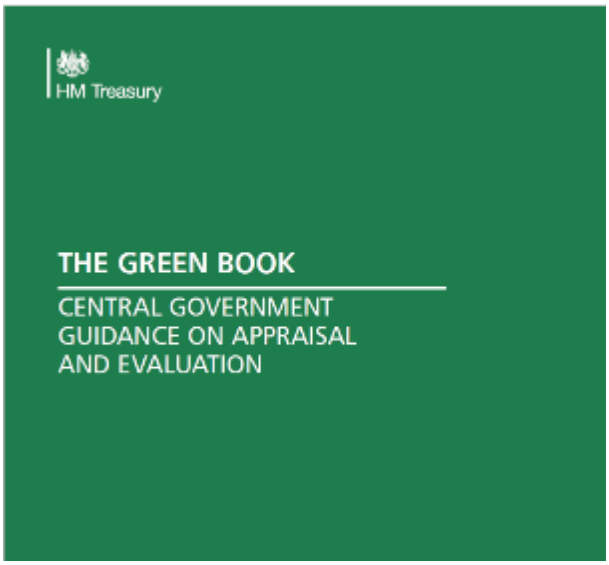


Figure 1.3 Social Cost Benefit Analysis for cultural institutions should follow HM Treasury Green Book Guidance for Appraisal and Evaluation

Government guidance in the UK Treasury's Green Book (2018) recommends that non-market goods like culture be valued in monetary terms, and often this requires the use of Stated Preference (SP) surveys.

1.3 Stated Preference surveys: Putting prices on non-market cultural institutions

Economic SP surveys present relevant groups (e.g. visitors, users, residents, the public) with information about an asset (e.g. a gallery with free entry). A willingness-to-pay value is determined from how much respondents state they would be willing to pay to continue to enjoy the asset in a hypothetical scenario where access is no longer free of charge.[20] This method is used by several public bodies, such as the Department for Transport, in policy making decisions around the value of travel time and impacts of construction projects on iconic heritage sites.

This SP research technique is known as Contingent Valuation (CV) which involves the design of surveys asking respondents directly to report their values. The CV methodology has over a few decades developed a range of best practice techniques to improve the robustness and welfare consistency of the values elicited.[21] These values are:

- A **maximum willingness-to-pay (WTP)** for a positive change or to avoid a negative change. For example, what would be the maximum value that the respondent would be willing-to-pay to have extended opening hours for a gallery, or how much they would be willing-to-pay to prevent the closure of a theatre in the city.
- A **minimum Willingness-To-Accept (WTA)** in compensation for a negative change or to forego a positive outcome. For example, how much money local residents would require to compensate them for a cultural festival no longer being held in a city.

The advantage of the CV method is that it can estimate the values that visitors obtain from an institution (*direct and indirect use value*), as well as the values that individuals who do not use the institution may place on its continued existence and provision of its services to others (*non-use value*), or the *optional* value that they may get from being able to use it in the future (see Textbox 1 and Figure 1.4).

20 The HM Treasury Green Book places market and revealed preference methods above stated preference in terms of robustness. However, note that in many cases stated preference is the only method available to capture many of the non-market benefits that cultural institutions provide, and the only method which can capture hypothetical future changes in service provision and capture both use and non -use value.

21 Arrow et al. 1993; Bakhshi et al. 2015; Bateman et al. 2002

The disadvantage of the CV method is that the WTP/WTA values elicited are dependent on how the good or service is defined within the survey. Those using WTP values for SCBA purposes should pay close attention to how the good/service was defined in the survey, what kind of payment it relates to (e.g. tax, entry fee, or donation), and the payment term (either an annual payment for a fixed period or a one-off payment for the life of the good or service).

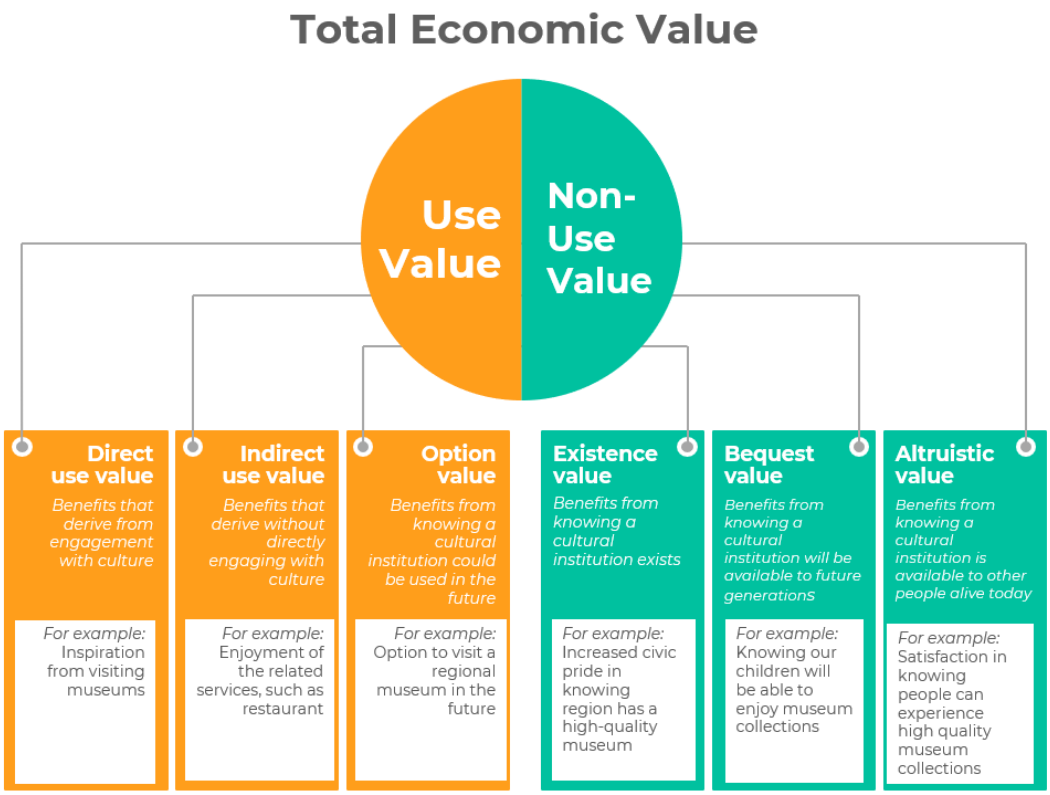
The values produced by this research represent a baseline value of regional galleries and theatres that can be used in SCBA to provide an understanding of the current value of the institution. We recommend that these values should be adjusted to the specifics of each institution, using data on visitor and local populations, and that this may be augmented through survey data collection and potentially varied according to the characteristics of each institution. However, organisations should always seek the advice of a valuation professional/economist when incorporating these values into a SCBA or business case.

Textbox 1 Overview of economic values

Use value refers to the WTP stated by those who have visited or otherwise engaged with the cultural institution within a designated time period. While these are expected to be *primarily* use values, we acknowledge that visitors may also hold non-use values for the preservation and maintenance of collections. Use value within this study refers exclusively to the WTP values held by visitors (i.e. users) for accessing the cultural institutions.

Non-use value refers to the WTP stated by those who have not visited or engaged with the cultural institution within a designated time period. While these are expected to be *primarily* non-use values, we acknowledge that non-visitors may hold elements of use value, such as the option value to visit the institution in the future or having used it online for research or recreational reasons.

Figure 1.4 Total Economic Value



1.4 Contributing to a Benefit Transfer Table of Economic Values for Culture

The WTP values for regional art galleries and theatres were estimated through primary data collection. Four sites for each cultural asset category were valued, with a target sample of 200 visitors and 200 non-visitors in each case. Visitors to a site ('users') and people who had never visited that site ('non-users') were the sample population,

following UK Government guidance on minimum sample sizes required for Stated Preference surveys.[22] Each person surveyed provided an individual maximum willingness-to-pay for the site in question. This provides a range of WTP values across the sample. We take an **average WTP value for visitors** and an **average WTP for non-visitors** for each site.

In statistics, the law of large numbers states that as a sample size grows the closer the average gets to the 'true' average of the whole population. An average WTP taken from 200 visitors is more representative than an average WTP from 20 visitors. Likewise, an average WTP from four regional museums is more representative than an average WTP from one regional museum. However, an average value will always be an approximation, and some error will be introduced if we assume that other sites have that same WTP value, because no two cultural sites are the same.

All values in the Benefit Transfer Table of Economic Values for Culture undergo tests for the robustness of the WTP values obtained. Data from the four regional art galleries and four regional theatres are tested to understand how much potential error could be introduced by taking WTP values estimated for other regional institutions and applying them to a new business case. To do this, we follow best practice in European Union and UK Government studies[23] by 'transfer testing' the WTP values in the Economic Values Database. This gives an estimate of the amount of 'error' that is introduced when transferring one site's value to another. A certain amount of error is expected (since no two sites are the same), but the Economic Values Database recommends only WTP values transferred with 40% or less levels of transfer error (recommended as acceptable in the literature).[24]

Non-use values have also been estimated for non-visitors in the local population. The Benefit Transfer Table of Economic Values for Culture (Table 5.2) currently provides representative WTP values for visitors and non-visitors to regional sites that can be transferred to other comparable sites in England using a technique called Benefit Transfer.

1.5 Benefit Transfer

Benefit transfer is the process of taking average WTP values for a cultural category from one research study (such as this one) and transferring it to another cultural institution, with confidence that it will be a robust estimate of the value that people would state for that institution if they were asked.

Some error will always be introduced through benefit transfer because no two cultural institutions are the same. It is recommended to statistically test how much error is created when transferring from the 'study sites' (the galleries/theatres surveyed as part of this study) to a hypothetical 'policy site', which would be the gallery or theatre that needs to be valued for a SCBA (or other purpose) but where WTP values have not previously been

22 Pearce and O'zdemiroglu 2002

23 R. Lawton et al. 2018; Fujiwara et al. 2018; S. Mourato et al. 2014

24 Tests to verify that the estimated WTP values have low errors when transferring the value from one institution to another (i.e. Transfer tests) were performed between all four sites. All transfer errors scored below the recommended 40% threshold for simple unit transfer, and for the transfer of visitor values using adjusted and function transfer. This indicates that the WTP values can be considered representative of a comparable site with acceptable margins of error. Transfer errors of errors of over 200% are common in the literature meaning that that 40% threshold is low in relative terms, given that complete like-for-like transfer between institutions of 0% transfer error would never be possible Ready and Navrud 2006.

estimated. To do this a set of transfer tests are run that sequentially places one of the study sites in the role of an unknown 'policy' site and predicts the WTP for this site, based on the pooled WTP values from the other remaining 'study sites'. Transfer tests tell us the amount of 'error' that is introduced via the transfer. A certain amount of error is expected, but WTP values should only be transferred to other sites if they are within acceptable levels of error, recommended as 40% in the literature.[25]

The procedure described above is known as 'simple' unit transfer. In addition to 'simple' benefit transfer, which takes a pooled WTP for all of the four cultural institutions surveyed in each category, there are also more sophisticated transfers which adjust the WTP values to the characteristics of that site, such as income or other demographic or geographic data. This has the potential to tailor the WTP value to the specific characteristics of visitors and non-visitors to cultural institutions. However, adjusted or function transfers also introduce more statistical complexity, and this can increase the risk of transfer errors. It is therefore necessary to test for the amount of error introduced using each of the three types of benefit transfer: simple, adjusted, and function transfer. A full description of the transfer error testing procedure is detailed in Appendix 6.2.

2 Literature Review

We first reviewed the current state of the literature on the valuation of art galleries and theatres using contingent valuation to inform our survey design. A more in-depth literature review can be found in sections 6.3.1 and 6.4.1. Recently, the DCMS Rapid Evidence Assessment (REA) of Valuation in the Culture and Heritage Sector report reviewed the literature published in the sector within the past twenty years. This REA gathered comprehensive knowledge of valuation techniques and reliable values for a range of cultural and heritage assets. This REA method provides a balanced systematic assessment of what is known about a policy issue and what gaps may remain. The results are presented within an Evidence Bank of economic values that includes valuation details, such as estimated monetary values for assets, and a grading of the quality of each study.

In the literature, there have been a handful of studies that assess the value of art galleries and exhibitions, the majority of which focus on Spanish and Italian galleries. The paper of most relevance to our current study is Fillis et al.[26] This paper elicited a WTP value through an entry fee to the Royal Scottish Academy New Contemporaries Exhibition (RSA NCE). Using a contingent valuation survey, an average WTP of £4.27 was found, marginally higher than the actual standard adult admission fee of £4. When the payment vehicle was a donation to support the RSA NCE, however, the average willingness-to-pay increased to £12.04. The finding that a donation yields greater WTP values is also found in Mazzanti[27], which valued the Galleria Borghese in Rome. When an entry fee was the payment vehicle, average WTP was £3.66 in present-day GBP. When the payment vehicle changed to a voluntary conservation fund, average WTP rose to £8.35. The literature suggests that this difference is driven by the lack of 'incentive compatibility' in voluntary donations, which encourages free-riding and greater hypothetical bias compared to compulsory payments, where respondents can only continue to enjoy the asset contingent on their

25 Ready and Navrud 2006

26 Fillis et al. 2015

27 Mazzanti 2003

willingness to pay.[28] These findings suggest our use of an entry fee may produce conservative estimates of the use value of regional art galleries compared to their non-use value, which is elicited using a donation.

To the best of our knowledge, relatively few studies have established the non-use value of galleries and fewer studies still establish both use and non-use values. Sanz et al.[29] is one of the few that measures both use and non-use value. By asking visitors and non-visitors whether they would be willing to provide an annual donation[30] to a preservation fund to maintain the National Museum of Sculpture in Valladolid, Spain, they found no great difference in user and non-user valuations. A use value was estimated between £23 and £28 in present-day GBP and a non-use value of £25. This strongly suggests that users and non-users alike hold significant values for the National Museum of Sculpture, even if they have not visited it.

Unlike free to access art galleries, theatres are a form of 'mixed good', meaning that they embody both public (in the cases where the theatre is supported by tax-payer funding) and private goods (people pay to see theatre performances in an active market). Therefore, theatres have both use and non-use values. Mixed goods can be difficult to value because there is no clear boundary between use value and non-use values. For example, people who have not paid for a theatre performance can be excluded from entry, but non-users still enjoy external benefits of the theatre, such as local or national pride, education for the community and the option for future use, and arguably still hold a value for the theatre being within their region. This lack of distinction is known as 'mixed good bias'.

Relatively few papers have investigated how much people value theatres. The most well-known paper is Hansen's[31], which elicited people's WTP for the Royal Theatre in Copenhagen, Denmark. By using an open-ended methodology in proposing an annual tax increase to enable the theatre to continue its current activities, they estimated an average WTP of 154 DKK held per individual (around £17.70 in present-day GBP). Moreover, users' WTP was found to be over three times greater than that of non-users.

Because of the lack of literature on theatres, we expanded our literature search to the valuation of the continued presence of sports teams in their respective home cities, to help inform our survey design methodology (noting that magnitude of values are likely to be different between cultural and sports institutions). The local identity created by support for a sports team arguably mimics that of arts and cultural centres, in this case, theatres. Barlow and Forrest[32] valued the continued existence of a local football teams to Bury and Luton in England. A payment-card approach was utilised with council tax as the payment vehicle. Monthly WTP values were estimated around £1.75, or £21 per year (around £23 in present-day GBP). The authors take this to be an upper bound since users were overidentified in the survey compared to non-users, who they conjectured would have a lower WTP.

In summary, the most common payment vehicle in CV studies of galleries is a donation to either the gallery or a conservation fund and a tax increase in the CV studies of theatres and similar venues (i.e. sports stadiums). Few

28 Carson and Groves 2007

29 Sanz et al. 2003

30 By employing a dichotomous choice methodology.

31 Hansen 1997

32 Barlow and Forrest 2015

studies have estimated a non-use value for galleries, nor estimated both a use and non-use value of a gallery. Relatively few studies have attempted to value theatres with the most common approach being a tax to obtain use and non-use values. A well-designed non-use survey captures support for the continued existence of the specific site being valued, which will be made up of some combination of altruistic value (knowing others can use it), bequest value (that future generations can use it) and existence value. In the literature it has been shown that many non-use surveys capture a warm glow or virtue signal value of all art galleries in general.

3 Regional Art Galleries

This section details primary research undertaken in the Contingent Valuation of regional art galleries in England.

3.1 Survey design

A survey was designed for each of the four galleries (Baltic Centre for Contemporary Art in Gateshead, Lady Lever Art Gallery in Greater Liverpool, Manchester Art Gallery, and the Millennium Gallery in Sheffield). The survey collected WTP values for:

- Visitor WTP:
  - to access one of the four galleries a respondent indicated they had visited in the last three years (a per visit value),
  - an experimental scenario for expansion of the gallery floor-space,
- Non-visitor WTP as a one-off payment (for the lifetime of the asset) for the continued existence of one of the four galleries a respondent indicated they had *not* visited in the past three years.

Sample sizes of 200 visitors and 200 non-visitors were targeted via an online panel survey of adult residents in England. Visitors were defined as having visited at least one of the galleries in the past three years (in line with the approach adopted in the surveys used in the previous studies for DCMS and AHRC). The non-visitor sample is composed of a mix of individuals who had visited at least one of the other three sites in the past three years.

The non-visitor sample is composed of a mix of local non-visitors, from the Government Office Region in which the institution is based (e.g. Yorkshire & Humber), and non-local non-visitors from across England, reflecting the fact that galleries may not just be valued by local residents. We test for differences in the values stated by local and non-local non-visitors by splitting out and comparing mean WTP between local and non-local non-visitors, to detect any significant differences between these groups, providing useful additional information on non-visitor WTP. However, as outlined in Section 3.3, we recommend that non-use values should be aggregated in a conservative way, to account for the specific uncertainties that exist around SP elicitation of non-use values.[33] One approach to addressing these uncertainties would be for non-use values to be aggregated to a realistic catchment area (typically the local region of the site) to avoid over-attribution of non-use value to any single institution. For this reason, the national non-use sample is weighted to reflect the attributes of the regional population around

33 For discussion of the issues and uncertainties around non-use WTP values, see Bandara and Tisdell 2005

each institution (e.g. North-West England), using 2011 census data on age and gender. This would help to ensure that aggregated non-visitor WTP values are suitable to be used in SCBA. The sampling approach for non-visitors is explained further in section 6.1.2.

This meant that respondents typically provided three WTP values; a visitor entry-fee value, an experimental visitor expansion value (one-off donation for lifetime of the asset), and one non-visitor donation value for a gallery they had not previously visited (one-off donation for lifetime of the asset)[34]. These valuation scenarios and choice of payment vehicle are explained in more detail in sections 3.1.2-3.1.4. Care should be taken when applying hypothetical WTP values; we recommend using the conservative lower bound non-use estimated; this is discussed further in section 6.1.2.

3.1.1 Data cleaning

The galleries survey included pre-screening questions at the start that filtered out respondents who were flagged by Qualtrics as being spam (Sample size, n=2) or under 16 years of age (n=3).[35]

The final galleries sample excludes some responses, as detailed in Section 6.1.6 and below:

- Those who gave multiple open-text responses that were unrelated to their respective questions (*n*=6).
- Those with unreliable responses (see section 6.1.6).
- Those who said they chose a WTP amount because they did not believe they would really have to pay (*n*=108) since this is an indication that the respondents did not answer the question in a realistic way[36].
- Those who completed the survey in an unrealistically fast time (*n*=33). Removal of so-called 'speedsters' is recommended practice in CV analysis. A threshold time of 5 minutes was set as the minimum period in which all the information provided in the survey could realistically be read and used to make informed preference decisions.[37]

Excluding respondents such as these, left 1,372 valid responses. While the exclusions reduced the gallery sample, it is preferable to have a more robust set of responses that provide greater confidence that the WTP values are accurate estimates. We acknowledge that the exclusion of these respondents could introduce some bias if they result in the systematic exclusion of certain types of respondents from the sample. To address this, ex-post analysis (logistic regression) was performed and found no significant selection effects within the samples of exclusions.

3.1.2 Valuation scenario 1: Visitor WTP for entry to regional gallery (per visit payment)

For the regional art galleries survey, an entry fee payment vehicle was chosen. Use of entry fee payment vehicles increases 'incentive compatibility'[38] by presenting a scenario where people will be excluded from accessing the institution unless they are willing to pay. This is an improvement on voluntary donation (as used by the majority of

34 A non-use booster only presented on valuation scenario asking respondents for their WTP a one-off donation for a gallery not yet visited (i.e., non-site).

35 As the survey was conducted around the general election, 19 respondents were flagged due suspicions that their responses were politically driven.

36 We note that while 104 gallery respondents were initially identified as answering unrealistically, in section 6.1.6, this is reduced to 82 respondents due to sequential data cleaning (i.e. 22 respondents were dropped due to other exclusion reasons).

37 Average survey completion time was approximately 18.9 minutes, with the median of around 12.4 minutes.

38 Bi and Whitehead 2019

past gallery studies) by overcoming free-riding responses, where respondents say they want access to the gallery without having to contribute a donation.

Good valued: Entry to a gallery that the respondent has visited within the last three years.

Payment vehicle: Entry fee (per visit)

Use valuation scenario: Respondents are given information about one of the galleries they have visited (being randomly assigned to one if multiple sites were visited). This includes information about when the gallery first opened, its collections, recent exhibitions, facilities, annual visitors and awards granted to the gallery. Attention is drawn to the fact that entry is free, although donations are welcomed. Photographs of both the interior and exterior of the gallery are presented.

Contingent scenario: Respondents are reminded that entrance to the gallery is free and told that most of the gallery's funding comes from a government grant. They are asked to imagine a scenario where the difficult national financial situation has meant that many art galleries in England have suffered cuts in funding. At the same time, the gallery is also having to cope with associated increases in maintenance and operating costs, while operating at close to visitor capacity. This would potentially compromise the quality of visitor experience. In the unlikely event that funding ceases to be provided, galleries would need to find other ways to raise enough money to support their activities and secure their long-time future. They are asked to think about how much a visit is worth to them and to imagine as if they were visiting the gallery on that day.

3.1.3 Valuation scenario 2: Experimental visitor WTP for gallery expansion (one-off donation)

The galleries survey contains an additional experimental question to value a proposed 10%, 20%, or 30% expansion to the gallery site. This experimental scenario was deemed to be realistic given that most galleries have storage or non-public spaces used to house exhibits that are not on display. To avoid confusion, it was explicitly outlined in the WTP questions that the expansion in gallery floor space would be brought about by converting backroom storage and collections space. By doing this, we ensured that respondents would be valuing only the expansion in gallery display space within the existing building and not an expansion to the gallery building itself. Had we not done this, there would be a risk that respondents would be valuing two quite different goods, making our results unreliable.

One problem with this approach was that one of the four shortlisted galleries (the Baltic Centre for Contemporary Art) does not store collections. Rather, the gallery only shows touring exhibitions and any floor space not used for the gallery can be rented out for private events. This means the above question may introduce a lack of realism if respondents know that no such storage space exists. Because of this, we included the option "I do not find the expansion scenario realistic" in the follow-up question to flag these respondents.[39] Aversion to moving collections storage off-site was captured by including the follow-up response "I do not believe that collections should be stored off-site".

39 Only 8 respondents in total answered that they did not find the expansion scenario realistic.

Good valued: Expansion of the gallery (randomised between a 10%, 20% or a 30% expansion in size)

Payment vehicle: One-off donation for lifetime of the expansion as an individual

Expansion scenario: Respondents are asked to imagine a scenario where the gallery is considering expanding its exhibition space. They are told that this would be achieved by converting backroom storage and collections space into a new public gallery floor space. Thereby, allowing more works of art to be shown at any one time. They are told this would be permanently free to access and that the expanded capacity would be housed entirely in the current building. Respondents are assured that the expansion would have minimal disruption on current exhibitions and opening hours. Photographs of gallery renovations are presented to make the scenario more realistic.[40]

Contingent scenario: Respondents are told that to convert backroom storage and collections space into a new gallery floor space, the gallery would need to find additional funds, which would have to come from public donations. They are asked if they would be prepared to pay a one-off donation, on top of any existing entry fee they previously stated, for this expansion to happen.

3.1.4 Valuation scenario 3: Non-visitor WTP to maintain regional gallery they had not visited (one-off donation)

Separate visitor and non-visitor subsamples were determined by visitors and non-visitors to the sites (see Table 3.1). Respondents who had visited one or some of the sites provided a use value for a site they had previously visited and a non-use value for a site they had not previously visited. This allowed us to determine separate use and non-use values within a single survey instrument.

Non-visitors were composed of both visitors to other study galleries who served as a non-visitor sample for sites they had not visited (i.e. 'impure non-users'), and 'pure non-users', collected through a gallery booster data sample who had not visited any of the four sites of interest (although they could have visited other galleries sites that were not listed).

We note that there may be underlying differences in the characteristics of so-called '*pure non-users'* (those who have not visited one of the four galleries in the past three years) and *'impure non-users'* (those who have visited at least one of the four galleries in the past three years). For instance, those who have not visited any of the four galleries may have lower levels of cultural engagement in general. We would expect that those who are less engaged with culture would have lower WTP for a theatre they have not visited. We therefore recruited a balanced sample with the inclusion of some 'pure non-users'. This issue is discussed in detail in Appendix Section 6.1.2. We note that mean non-use WTP values did not differ significantly between the pure and impure non-visitor samples (p= 0.842).

As non-visitors had not previously visited the non-use site, it was agreed that donations would be a more realistic payment method rather than an entry-fee for art galleries. This follows previous literature in which a donation is

40 Generic gallery renovation pictures were used as pictures of the renovations could not be found for each of the sites.

the preferred payment scenario for non-visitors, as it is seen as more important to overcome hypothetical bias (that a non-visitor may never have to pay an entry fee) than increase consequentiality.[41] All respondents were randomly assigned to one of the four galleries they had not visited within the last three years.

Good valued: Maintaining the existence of a gallery the respondent has not visited within the last three years.

Payment vehicle: One-off donation for life of asset. The one-off payment was chosen for the present scenario, as this is based on a voluntary donation question, which increases the risk of hypothetical bias inflating non-use WTP. A one-off donation therefore provides the most conservative estimate of value for aggregation to the national population, which was identified as preferable for policy application during the Stonehenge A303 Development Consent Order value for money evidence submission. However, we note there may be an argument for non-use WTP to be elicited as an annual payment (as in the previous museums valuation study) as this can be interpreted as the value of the continued flow of services from a cultural institution. This may be especially relevant in the continuing discussions of cultural stocks and flows within the DCMS Culture and Heritage Capital Framework and is an important area for future research on the application of CV values into SCBA.

Non-use valuation scenario: The non-visitor valuation scenario provided respondents with the same information that was provided for the visitor valuation scenario, specific to the non-visited site.

Contingent scenario: The non-visitor contingent scenario follows the same process as the use contingent scenario, where funding has been cut to art galleries in England meaning that galleries were finding it difficult to secure their long-time future. Respondents are asked to think about how much the gallery is worth to them. Unlike the visitor contingent scenario, which used an entry fee, respondents are asked if they would be prepared to pay a one-off donation (for life of asset) to keep the gallery open in the non-use contingent scenarios.

In all valuation scenarios, we used:

- A payment-card approach, as employed in previous AHRC and DCMS-funded valuation research[42], to avoid the pitfalls of other types of surveys, such as starting-point bias.
- Photographs of the art galleries in question, as large blocks of text can be cognitively burdensome, while photographs make the hypothetical scenarios more realistic and reduces uncertainty around the good being valued.[43]
- Bias reduction script: Cheap talk[44], oath script[45], consequentiality script[46] (see section 6.1.3).

41 Champ et al. 1997

42 Bakhshi et al. 2015

43 Bateman et al. 2009

44 Murphy et al. 2005

45 R. N. Lawton et al. 2019

46 Needham and Hanley 2020

Table 3.1 Summary of the valuation scenarios each type of respondent receives

Type of respondent	Use (entry fee and expansion)	Non-use
Visited all four galleries ('pure users')	Randomised between the four galleries visited	X
Has visited between one and three of the four galleries ('impure non-users')	Randomised between the galleries that were visited	Randomised between the galleries that were not visited
Has not visited any of the four galleries ('pure non-users')	X	Randomised between the galleries that were not visited

3.2 Results

The art galleries survey ran from 4th-24th December 2019 with a booster non-use survey which ran from 16th-26th November 2020. Survey sampling was designed to elicit the views of visitors of galleries, defined as those who had visited at least one of the four shortlisted galleries in the past three years. This assumes that the survey samples were representative of the visitors to the galleries.

3.2.1 Sociodemographic characteristics

Visitor samples for each institution were compared to visitor statistics from the Audience Agency's Audience Finder database.[47] We do not automatically apply weighting from the Audience Finder database as it could not be directly matched to our survey dataset due to missing values for certain variables.[48] Instead, we checked for differences in the age and gender of visitors reported in the Audience Finder compared to the primary data collected here. This found that the Audience Finder data is broadly comparable to the primary data in terms of the gender of visitors. However, there were relative differences in the rates of age groups of visitors. Our survey data recruited fewer older respondents (65 years and older) but recruited more younger respondents (more 25-34yrs for two sites: The Lady Lever Art Gallery and the Millennium Gallery; and more 16-24yrs for two sites the Lady Lever Art Gallery and Manchester Art Gallery). Table 3.2 presents a summary of primary data visitor socio-

47 https://audiencefinder.org/

48 We identified a number of issues with the available visitor data. For all institutions there are gaps in the data. This would require us to make assumptions to fill those gaps which could introduce more bias than not weighting. Furthermore, the sample sizes on which the Audience Finder data is based is in some cases not much greater than our own survey samples which raises the issue of how much power such weighting would have. There is also a lot of unreported variance in the survey mode and sampling methodology adopted by each institution. Institutions are given a choice of face to face paper / face to face tablet / email online, or some mix of those. While the Audience Agency does provide support around sampling using these methods - for example that email collection should not be based on mailing lists, but emails collected from purchases – there is no reporting of the actual sampling approach adopted or consideration of the limitations of the data. The Audience Finder data is however limited and does not interact age and gender. In other words, we know how many visitors are female, but we do not know how many of the visitors in the 16-24 bracket were female.
We would require that level of interaction to create meaningful weights. Otherwise weighting could introduce an unrealistic level of homogeneity within each of the age and gender bracket, which oversimplifies the interactions between age and gender that we have in our sample. To weight using the simple age and gender data in the Audience Finder data would in effect force a mismatch of age brackets which means that weighting will be based on inaccuracies and false assumptions in the data. In sum, our scoping of the Audience Agency data suggests that to exert Audience Finder weights based on simplified demographic brackets and data gaps would be to introduce more, not less bias, into the results.

demographic characteristics (unweighted)[49]. Table 3.3 presents a summary of primary data non-visitor socio-demographic characteristics (unweighted).

As the Audience Finder data did not have any significant gaps in the age information collected, we weight all visitor samples to reflect the age brackets of visitors surveyed in the Audience finder data, to ensure greater representativeness of the WTP results to real-world gallery visitors. For the non-visitor sample, the initial survey covered visitors to other institutions (i.e. impure non-users) who provided a non-use for a site they had not yet visited and included non-visitors from any part of the country. A booster non-visitor sample of survey respondents who had not visited any of the sites (i.e., pure non-users) was recruited from within the local regional catchment areas of the four sites. However, there is still debate about the appropriate level at which to aggregate non-use WTP values in SCBA. For instance, there are questions about whether aggregating to the national population is appropriate, as it assumes that residents in one region would hold non-use values for every gallery in the country (which they may do) and assumes that the values can be added together with no diminishing effect on the marginal value of each gallery (which cannot be safely assumed, and could lead to an over-attribution of values if non-use values for all galleries were summed together). One approach to addressing this uncertainty and to err on the side of caution is for non-visitor WTP to be aggregated to a realistic local regional catchment area (see section 3.3). To this effect, in this report the national non-visitor sample (i.e. impure non-users) is weighted to reflect the attributes of the regional population around each institution, using 2011 census data on age and gender.

Table 3.2 Regional gallery Visitor socio-demographic characteristics – unweighted

Visitors	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield
Female: % (n/N)	51.8% (114/220)	61.2% (145/237)	64.1% (229/357)	58.2% (128/220)
Age: mean (se)	47 (1.2)	47 (1.1)	44 (0.8)	40 (1.0)
Household annual income (£): mean (se)	£37,288 (£1,866)	£37,672 (£1,838)	£32,735 (£1,260)	£38,775 (£2,003)
Has dependent children under 16 years: % (n/N)	31.4% (69/220)	42.2% (100/237)	43.8% (155/354)	51.8% (114/220)
Married/Civil Partner: % (n/N)	53.0% (116/219)	53.2% (125/235)	48.0% (170/354)	48.8% (106/217)
University education % (n/N)	47.9% (105/219)	44.9% (106/236)	38.8% (138/356)	53.0% (116/219)
In employment (full-time, part-time, self-employed): % (n/N)	65.0% (143/220)	59.7% (141/236)	61.3% (219/357)	70.0% (154/220)
Current resident of use city: % (n/N)	44.5% (98/220)	51.9% (123/237)	69.2% (219/357)	44.1% (97/220)

49 The standard errors for our income data are relatively small (£1,260-£2,003) which suggests that the socioeconomic characteristics of the primary data is relatively homogenous between our gallery sites.

Notes: "Current resident of city" refers to people who currently live in the respective city. Weighted demographics reported in Appendix 6.1.5.

Table 3.3 Regional gallery Non-visitor socio-demographic characteristics – unweighted

	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield
Impure Non-visitors				
Female: % (n/N)	55.4% (97/175)	62.9% (124/197)	63.3% (205/324)	61.3% (106/173)
Age: mean (se)	49 (1.3)	49 (1.2)	45 (0.9)	43 (1.3)
Household annual income (£): mean (se)	£35,883 (£2,116)	£35,838 (£1,933)	£32,425 (£1,287)	£34,708 (£2,022)
Has dependent children under 16 years: % (n/N)	22.9% (40/175)	36.0% (71/197)	42.2% (136/322)	43.4% (75/173)
Married/Civil Partner: % (n/N)	48.9% (85/174)	48.5% (95/196)	47.8% (154/322)	48.8% (83/170)
University education % (n/N)	45.4% (79/174)	40.1% (79/197)	37.7% (122/324)	48.8% (84/172)
In employment (full-time, part-time, self-employed): % (n/N)	59.4% (104/175)	53.3% (105/197)	60.9% (198/325)	62.4% (108/173)
Current resident of non-use city: % (n/N)	0.6% (1/175)	5.1% (10/197)	1.8% (6/325)	2.9% (5/173)
Pure Non-visitors				
Female: % (n/N)	47.9% (23/48)	60.4% (29/48)	56.0% (28/50)	62.0% (31/50)
Age: mean (se)	46 (2.29)	51 (1.81)	53 (2.10)	54 (2.08)
Household annual income (£): mean (se)	£33,859 (£3,557)	£32,976 (£4,437)	£26,330 (£2,486)	£27,337 (£3,214)
Has dependent children under 16 years: % (n/N)	27.1% (13/48)	27.1% (13/48)	20.0% (10/50)	12.0% (6/50)
Married/Civil Partner: % (n/N)	45.8% (22/48)	52.1% (25/48)	48.0% (24/50)	48.0% (24/50)
University education % (n/N)	31.3% (15/48)	31.3% (15/48)	32.0% (16/50)	30.0% (15/50)
In employment (full-time, part-time, self-employed): % (n/N)	52.1% (25/48)	46.8% (22/47)	50.0% (25/50)	42.0% (21/50)
Current resident of non-use city: % (n/N)	29.2% (14/48)	18.8% (9/48)	50.0% (25/50)	14.0% (7/50)

Notes: "Current resident of city" refers to people who currently live in the respective city. Weighted demographics reported in Appendix 6.1.5.

In all subsequent tables in Section 3.2, we report only weighted figures.

3.2.2 Attitudes to art and culture

Between sites there was little difference between visitors and non-visitors in their attitudes to arts and culture, which probably partly reflects that visitors to one site were non-visitors to another site. People interested in museums and galleries made up a large portion of the sample with 67% reporting visits to a museum or art gallery

within the past 12 months compared to 69% of non-visitors (see Table 3.4). For both visitors and non-visitors, 21% voted arts and culture within the top five priorities for public spending.

Table 3.4 Regional gallery Visitor and Non-Visitor attitudes towards art and culture

	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total
Visitor attitudes					
Visited a museum or art gallery in the last 12 months (%)	73.6%	76.0%	63.3%	58.7%	67.4%
Arts or culture amongst the top 5 priorities for public spending (%)	26.4%	18.0%	17.2%	25.0%	21.0%
Non-visitor attitudes (pure and impure non-visitors)					
Visited a museum or art gallery in the last 12 months (%)	72.3%	78.1%	61.9%	67.7%	68.8%
Arts or culture amongst the top 5 priorities for public spending (%)	24.7%	19.4%	17.8%	24.6%	21.0%

A high proportion of visitors to all galleries agreed that preserving arts for current and future generations is important (72%-75%; refer to Figure 3.1) and that visiting art galleries increases wellbeing (74%-77%; refer to Figure 3.2).

Figure 3.1 Visitor attitudes: visitors that agree or strongly agree that art galleries should be preserved

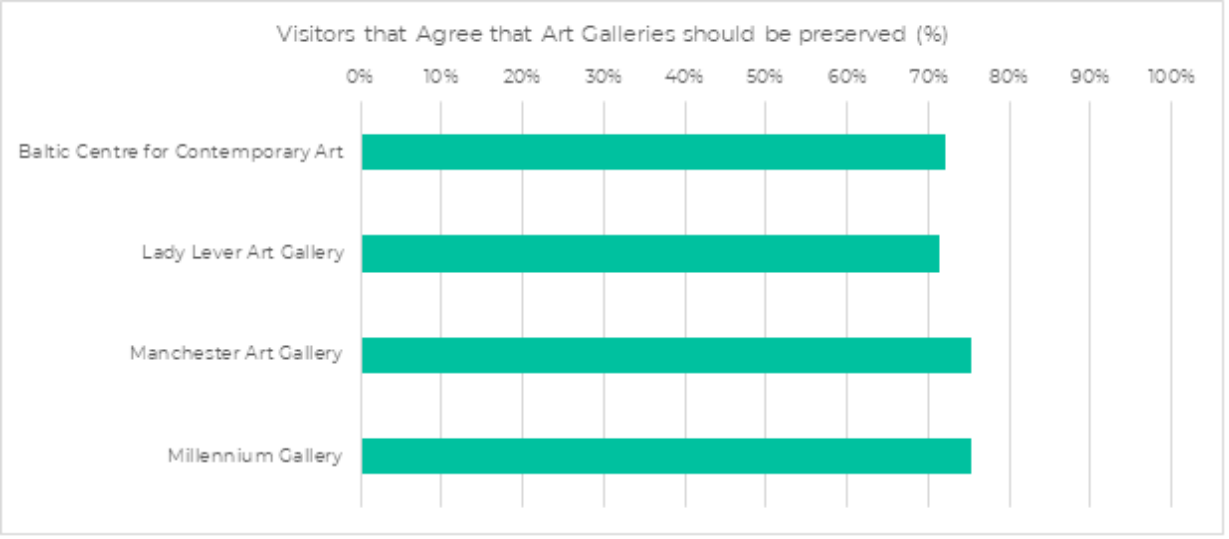
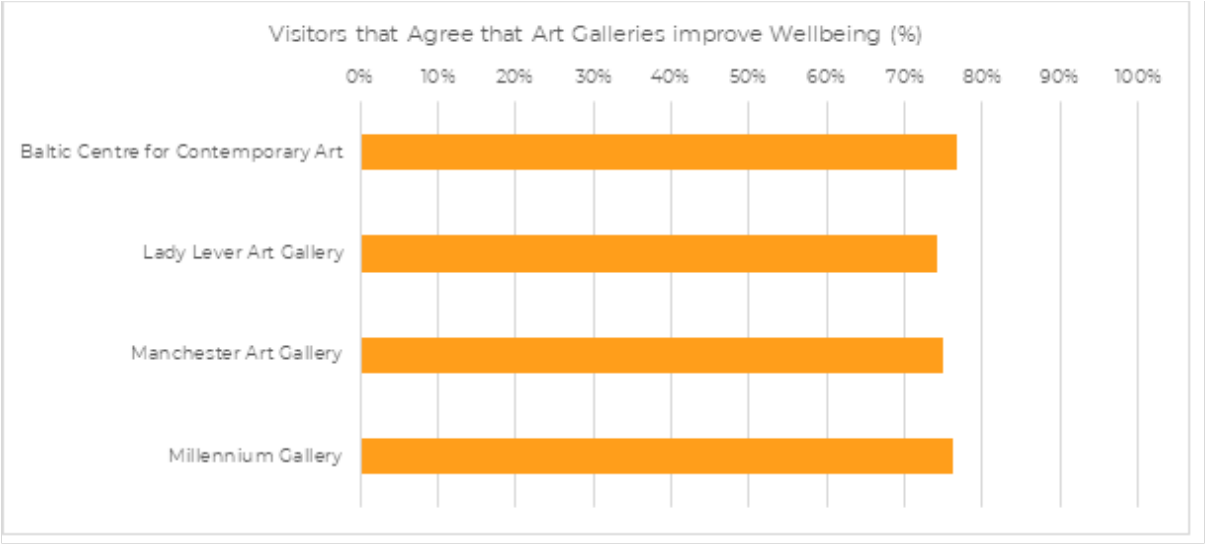


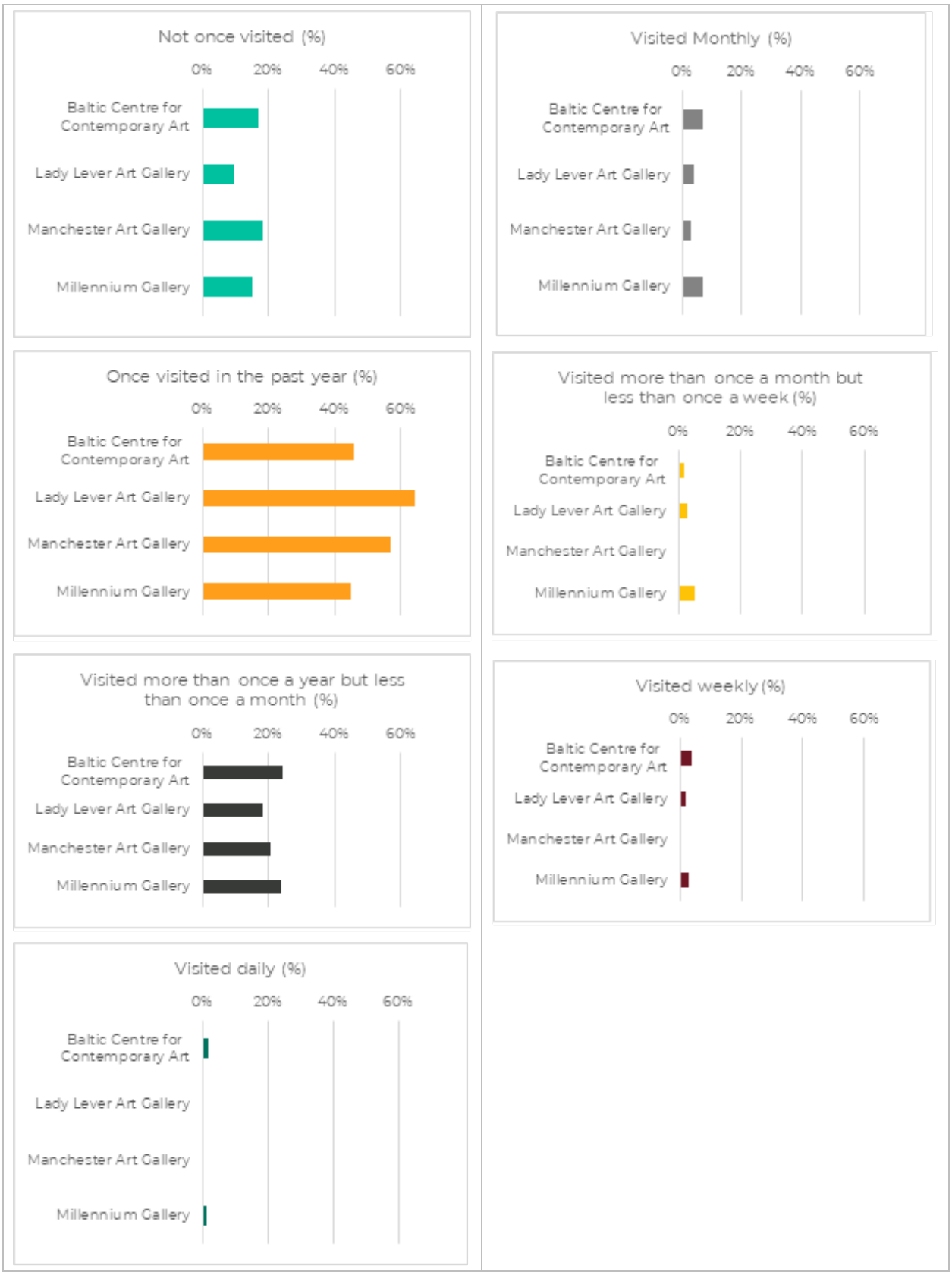
Figure 3.2 Visitor attitudes: visitors that agree or strongly agree that art galleries improve wellbeing



3.2.3 Site visits

Visits to the galleries were self-recorded by respondents within the previous 12 months (keeping in mind visitors were determined by a visit within the last 3 years). Most respondents, across the four galleries, visited at least once in the past year (45%-64%; refer to Figure 3.3).

Figure 3.3 User visits within the past 12 months



3.2.4 WTP values

Mean willingness-to-pay figures are reported for each of the three gallery valuation scenarios (visitor entry fee, visitor expansion donation, and non-visitor donation). All willingness-to-pay values were elicited through a payment card elicitation mechanism. This means that respondents' actual willingness-to-pay amount will lie somewhere between the amount they choose and the next amount on the payment card. To take into account these intervals we therefore used the mid-point between the amount chosen on the card and the next amount up, as is standard in the CV literature.[50] Following standard practice, all those who responded that they were not willing to pay in principle were coded as £0 bids. This ensures that the full range of values are included in the evaluation. Using the mean WTP rather than the median is standard practice in CV studies where the objective is to aggregate values.[51] The mean is relevant if the context of the valuation exercise is cost benefit analysis because it represents an average WTP for the population which can be aggregated (by the population size) to derive the total WTP across the population.[52] A pilot survey was conducted to establish an appropriate range of WTP values.[53]

3.2.4.1 *Regional gallery visitor entry-fee values*

In order to understand how much visitors value regional galleries, the survey proposed a hypothetical scenario where entry was no longer free and asked respondents for the maximum individual entry fee they were willing to pay to visit the gallery. When asked if they were prepared to pay an entry fee in principle, 69% of respondents said 'Yes' or 'Maybe' (refer to Table 3.5). This is a high proportion who are willing to pay in principle for a cultural institution, compared to previous DCMS-funded valuation studies[54], and may reflect the high levels of cultural engagement of survey visitors as identified in the tables above.

Table 3.5 Entry fee to regional gallery: Willingness-to-pay in principle

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total
Yes	65.8%	63.0%	57.3%	58.3%	60.6%
Maybe	3.8%	6.1%	10.1%	11.1%	8.1%
No	30.4%	30.8%	32.6%	30.6%	31.3%

Recall that in all cases, and as standard in CV surveys, WTP values include both positive values and zero values (i.e. £0), ensuring that the values are representative of the preferences of all visitors. Based on the responses described in Table 3.5, respondents are either presented with a choice of payment amounts (if they answered 'Yes' or 'Maybe' above, they indicated they were potentially willing to pay in principle) or assigned a £0 bid (if they

50 Bateman et al. 2002

51 Vaughan et al. 2000

52 Pearce and O'zdemiroglu 2002

53 We conducted a pilot survey on 5th December 2019 using a quota-based sample of 55 online panel respondents. Based on the finding that seven of the 55 respondents (12.73%) would have liked a wider range of values, as well as a clustering of payment-card responses around £5, we decided to add a payment card of £4.50 to the main survey. This was designed to avoid payment-card bias at the £5 figure.

54 Fujiwara et al. 2018

answered 'No' above, they indicated they were not willing to pay in principle). All these responses are used to estimate average and median willingness-to-pay for use-site galleries.

- **Across all four regional galleries surveyed, average willingness-to-pay an entry fee to visit the gallery is £5.40 per person per visit, with a lower bound (95% confidence interval) of £5.01**. This is around half the size of the mean WTP of visitors to Tate Liverpool, a comparable regional gallery, as surveyed in the AHRC Cultural Value Project.[55] However, we note key differences: WTP for Tate Liverpool was a one-off donation to support all of the work inside the gallery (consisting more of an 'existence value'), whereas the values in the present study represent a **per visit entry fee** for access to the gallery (consisting more of a 'recreation value'). Also, the £5.40 figure is based on a pooled average across four regional galleries, rather than a single site which may represent an outlier. As such, the WTP values for regional galleries can be considered realistic and robust, and potentially more conservative than previous single-site estimates.
- **Between the four regional galleries, WTP ranges between £4.59 for Manchester Art Gallery in Manchester, and £6.02 for the Millennium Gallery in Sheffield** (Table 3.6). The distribution of WTP across galleries is not broad, which provides greater confidence in the homogeneity of the galleries surveyed (and is reflected in the confidence intervals in the Total column).

Table 3.6 Regional gallery visitor WTP entry fee values (per visit)

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Mean (std. err.)	£5.79 (£0.47)	£5.67 (£0.41)	£4.59 (£0.20)	£6.02 (£0.57)	£5.40 (£0.19)
Lower confidence interval (CI) (95%)	£4.87-£6.71	£4.87-£6.47	£4.20-£4.97	£4.90-£7.14	£5.01-£5.78
Median	£4.25	£4.75	£3.75	£3.25	£3.75
Sample size	220	237	357	220	1034

When provided the chance to respond why they were willing to pay, the majority of respondents reasoned their "willingness to support is not just for the gallery but for all art galleries" at 29%, closely followed by "the gallery is an important site of cultural heritage that should be protected" at 25%, and that they "like visiting/enjoyed the gallery" at 23% (Appendix Table 6.5). However, no respondents were excluded from calculation of mean WTP based on their follow-up responses, due to the uncertainty around these follow-up responses and to avoid information loss. **Follow-up motivation data suggests that people's WTP is motivated partly by their direct experience, partly by an altruistic desire that other people should be able to enjoy the gallery, and by a general**

55 Bakhshi et al. 2015

'warm glow' value for culture as a whole. This is a common finding in the academic literature and suggests there are many reasons that people value cultural sites.[56]

Of the respondents who said they were not willing to pay an entry fee to visit a gallery, 29% said that "art galleries should be free for all" Appendix Table 6.6). This suggests that some respondents support free entry for art galleries and recognise the sites as being culturally important. It may also reflect respondents considering that they have already paid for the gallery through taxation. Given the uncertainty around the true motivations behind WTP in the follow-up responses, no respondents were excluded from calculation of mean WTP due to follow-up responses.

- Splitting respondents up into local visitors and non-local visitors (refer to Table 3.7), we see that **those who live close to the gallery (i.e. local visitors) report a lower willingness-to-pay on average than those who live further away (i.e. non-local visitors; £4.41 and £6.65 respectively).**

This difference between local and non-local visitor WTP is useful, as it enables a more nuanced estimate of the per visit value that the gallery provides to different audience types (see Section 3.3).

Table 3.7 Local vs non-local regional gallery visitor entry fee WTP values (per visit)

		Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Local visitors	Mean (std. err.)	£4.67 (£0.31)	£4.65 (£0.46)	£4.35* (£0.22)	£4.04 (£0.42)	£4.41 (£0.17)
	Lower confidence interval (CI) (95%)	£4.06-£5.28	£3.74-£5.57	£3.91-£4.79	£3.21-£4.87	£4.08-£4.74
	Median	£4.25	£3.75	£3.25	£2.75	£3.25
	Sample size	98	123	247	97	565
Non-local visitors	Mean (std. err.)	£6.58 (£0.76)	£6.83 (£0.65)	£5.17* (£0.40)	£7.89 (£1.02)	£6.65 (£0.38)
	Lower confidence interval (CI) (95%)	£5.07-£8.10	£5.54-£8.11	£4.38-£5.97	£5.88-£9.90	£5.91-£7.39
	Median	£4.75	£5.50	£4.25	£4.25	£4.25
	Sample size	122	114	110	123	469

Note: Star (*) indicates that the difference in WTP value within a given city and outside of that city is significant at 95% confidence level in two-sample t-test.

3.2.4.2 *Regional gallery visitor expansion values (experimental follow-up WTP) (one-off donation)*

The expansion scenario collected experimental evidence, seeking to identify visitors' marginal values for different scales of gallery expansion. **We note that this is an experimental approach that may not yet have been sufficiently tested or validated for inclusion in business cases.** Prior to the expansion valuation scenario, we asked respondents their opinions on the current conditions in the galleries (refer to Table 3.8). Across sites, 91% of the sample were satisfied or extremely satisfied with the current condition of the galleries and 88% were satisfied or extremely satisfied with the gallery and exhibitions size. The highest satisfaction with the overall condition of the

56 Bandara and Tisdell 2005

galleries was high ranging from the Manchester Art Gallery and Baltic Centre for Contemporary Art with 92% of respondents reported being satisfied or extremely satisfied to the Millennium Gallery with 87%. The same pattern was found for the size of the galleries and exhibitions with the Baltic Centre for Contemporary Art reporting 89% satisfaction ratings and the Millennium Gallery reporting the lowest (84%) in satisfaction ratings.

When asked whether the size of the exhibition space (permanent or temporary) needed improvement, most respondents (63%) reported no need for improvement. Although, over quarter of the respondents thought there was a moderate to urgent need for improving the size of gallery and exhibitions across the four sites (32%). Millennium Gallery in Sheffield reported the highest rate of respondents rating moderate to urgent need of improvement in the size of exhibition space at 43%.

Table 3.8 Satisfaction with condition of galleries (self-reported by survey respondents)

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield
Is satisfied or extremely satisfied with the condition of the gallery (%)	92.0%	91.0%	92.1%	87.4%
Is satisfied or extremely satisfied with the size of the gallery and exhibitions (%)	89.0%	88.7%	88.9%	83.9%
No need for improvement in the size of the exhibition space (permanent or temporary) (%)	63.7%	64.7%	63.6%	57.1%
Moderate need for improvement in the size of the exhibition space (permanent or temporary) (%)	29.5%	28.5%	32.8%	37.0%
Urgent need for improvement in the size of the exhibition space (permanent or temporary) (%)	6.8%	6.8%	3.6%	5.9%

The survey proposed the hypothetical scenario of an expansion to the gallery by converting existing backroom storage and collections space into a new gallery floor space. The size of the expansion was randomised with each respondent presented with one of three amounts: a 10%, 20% or a 30% increase in the size of the gallery exhibition space. It was noted that any expansion would not impact the gallery's current opening hours and exhibitions on display. When asked if they were prepared in principle to pay a one-off individual donation to support the expansion, 50% of respondents said 'Yes' or 'Maybe' (Table 3.9). The highest proportion of visitors who said they were not willing to pay were visitors to the Manchester Art Gallery (56%). This may be due to a relatively recent expansion to the gallery in early 2000s (the gallery reopened after an expansion in 2002).

Table 3.9 One-off donation to expand gallery: Willingness-to-pay in principle

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Yes	32.6%	23.8%	25.5%	28.8%	27.3%
Maybe	17.5%	28.2%	18.1%	27.8%	22.4%
No	49.9%	48.0%	56.4%	43.4%	50.3%

As in the use-site scenario above, respondents are either presented with a range of payment cards to elicit how much they value an expansion of the gallery if they answered 'Yes' or 'Maybe' (Table 3.10). Those who responded 'No' are assigned a value of £0. All values were used to estimate the average and median willingness-to-pay for galleries.

- **Across the four regional galleries, visitors were willing to donate £6.34 as a one-off donation per person on average for the life of the expansion to support an expansion of the gallery, with the expansion level randomised by 10%, 20% or 30% in the survey, with a lower bound of £5.59.** Average WTP for expansion of the gallery is therefore higher than WTP for entry to the gallery, although we note that this is a one-off payment for a major construction project with long-term impacts, whereas the entry fee WTP is a per-visit payment that must be made each time a person wish to visit the gallery. We note that this expansion scenario is experimental and would need to be subject to further testing and verification before being applied into business cases for a gallery expansion.
- **Between the four regional galleries, expansion WTP (one-off donation) ranged between £5.62 for the Manchester Art Gallery in Manchester, and £7.25 for the Baltic Centre for Contemporary Art in Gateshead** (Table 3.10). Again, we hypothesize that the lower expansion WTP for the Manchester Art Gallery is likely due to the Manchester Art Gallery's relatively recent expansion, leading to a sense that the benefits of further expansion would be more marginal.

Table 3.10 One-off donation to expand regional gallery by 10%/20%/30%: WTP values (one-off payment for life of expansion)

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Mean (std. err.)	£7.25 (£1.28)	£6.11 (£0.65)	£5.62 (£0.39)	£6.81 (£0.80)	£6.34 (£0.38)
Lower confidence interval (CI) (95%)	£4.73-£9.78	£4.83-£7.39	£4.86-£6.38	£5.23-£8.38	£5.59-£7.08
Median	£3.25	£4.25	£3.25	£3.25	£3.25
Sample size	222	242	357	220	1041

In terms of motivations behind positive WTP, the highest proportion of respondents were willing to pay to support the gallery expansion because they had "enjoyed visiting the gallery in the past" at 22%, followed by "I have an

interest in art and want to make sure the gallery and its collections are adequately conserved and maintained, and presented in the best possible way" at 21% (Appendix Table 6.7). **Follow-up motivation data suggests that the positive gallery expansion scenarios are motivated by direct enjoyment of the gallery experience and a desire to see art collections presented in a better way.**

Of those respondents who said they were not willing to pay an entry fee to visit a gallery, 30% reasoned they "could not afford to pay for the expansion of the gallery" under the expansion scenario (Appendix Table 6.8). This suggests that a site expansion would be appreciated by visitors and potentially increase visitor enjoyment, but not everyone could afford to donate towards the cause. However, no respondents were excluded from calculation of mean WTP due to follow-up responses, due to the uncertainty around these follow-up responses and to avoid information loss.

- **Breaking up the expansion scenario into its three randomised percentages, we see that the 30% expansion scenario had a larger average willingness-to-pay (£7.11), followed by the 10% scenario (£6.32; refer to Table 3.11).**
- This higher average for a 10% expansion is likely to be due to higher values for the Baltic Centre for Contemporary Art and Manchester Art Gallery, where visitors were willing to pay a larger donation for a 10% expansion compared to a 20% expansion. This suggests that, for some sites, smaller expansions to exhibitions might be valued by the public as much as larger expansions.
- **Given that the follow-up analysis of the marginal value of different levels of gallery expansion was inconclusive, we recommend that the different WTP values for the separate levels of expansion should not be applied in SCBA as they are not statistically significant in t-tests or regression analysis (Appendix Table 6.12). We instead recommend that this experimental approach be developed further, potentially through Discrete Choice Experiments trading off different levels of service offer against a hypothetical payment scenario.**

Table 3.11 Experimental analysis: One-off donation to expand gallery: WTP values by expansion level (10%/20%/30%)

Expansion scenario	Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
10%	Mean (std. err.)	£9.54 (£3.27)	£4.46 (£0.75)	£5.87 (£0.56)	£5.66 (£0.86)	£6.32 (£0.78)
20%	Mean (std. err.)	£6.78 (£1.46)	£5.70 (£0.86)	£4.50 (£0.46)	£5.65 (£1.01)	£5.57 (£0.48)
30%	Mean (std. err.)	£4.99 (£0.65)	£7.88 (£1.44)	£6.36 (£0.87)	£9.50 (£2.15)	£7.11 (£0.65)

Note: Star (*) indicates that the difference in WTP value between each expansion level and the rest of the sample, significant at 95% confidence level in two-sample t-test. None of these differences were statistically significant.

We performed further sensitivity analysis on the experimental expansion scenario by using data on their perceived satisfaction with the size of the gallery, collected before and after the expansion WTP questions. The survey asked for respondents' satisfaction with the gallery's size twice: once before the expansion scenario was presented and once after. Based on the latter question, 86% of respondents indicated that their satisfaction with the size of the gallery would increase following an 30% expansion, with slightly lower levels of satisfaction with smaller expansions (see the Total column in Table 3.12, based on the pooled average across sites using the site averages). This accords with prior expectations, as we would expect that an increase in exhibition space would directly

increase satisfaction with the galleries. However, these satisfaction findings are not directly connected with the amount respondents were willing to donate. This suggests that while respondents report they would be more satisfied with greater expansions, they are not always willing to donate more for them. This could indicate some insensitivity to scope, but there may be other reasons that people would prefer a smaller gallery expansion (possibly to prevent excessive disruption or more visitor congestion). It suggests that WTP scenarios that value business as usual (such as the entry fee scenario) are better able to be measured through CV surveys, but that WTP for marginal changes from business as usual may require an alternative methodology, such as Discrete Choice Experiments, and cannot be captured though the experimental expansion CV scenario tested here.

The gallery expansion results provide initial experimental evidence on visitor preferences towards expansion of art facilities. However, there are still some substantial unresolved questions on the interaction between pre-existing satisfaction levels with the size of the gallery, and sensitivity to the scope of the proposed expansion. We therefore recommend that they should not be applied into expansion business cases in their current format, and that further research should be commissioned to explore the marginal WTP associated with different service offerings as part of the Culture and Heritage Capital Framework.

Table 3.12 Satisfaction with regional gallery expansion by 10%, 20%, and 30% among survey respondents

Satisfaction with gallery expansion	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (the pooled average across gallery sites)
Satisfied to Extremely satisfied following a 10% expansion	74.6%	76.6%	86.8%	80.1%	80.6%
Satisfied to Extremely satisfied following a 20% expansion	86.6%	82.8%	85.7%	86.3%	85.4%
Satisfied to Extremely satisfied following a 30% expansion	82.0%	89.0%	85.1%	86.0%	85.7%

3.2.4.3 *Non-visited regional gallery values (non-visitors only) (one-off donation)*

In order to elicit a non-visitor value for a gallery, the survey proposed a hypothetical scenario similar to the one used for the visitor site WTP where the gallery was no longer funded by the government and asked respondents for the maximum individual one-off donation they were willing to pay to keep the gallery open. The survey asked for willingness to pay a one-off donation for a regional gallery which respondents had not yet visited. Although not explicitly stated in the survey, we assume this to be a one-off payment for the life of the asset, since the survey did not stipulate that they would have to pay this donation on a recurring basis. Given that WTP is expected to be sensitive to the payment duration, the assumption of a one-off payment over the life of the asset provides a more conservative estimate when aggregated over multiple years in present value calculations. When asked if they were prepared to donate in principle, 58% of respondents said 'Yes' or 'Maybe' (Table 3.13). This proportion of non-use

respondents who are willing to pay in principle is broadly comparable to previous valuation studies for cultural institutions.[57]

Table 3.13 Non-visitor regional galleries (one-off donation): Willingness-to-pay in principle

Willing to pay in principle	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Yes	13.1%	18.5%	20.5%	13.5%	16.5%
Maybe	45.9%	39.5%	39.7%	41.6%	41.6%
No	41.0%	42.0%	39.8%	44.9%	41.9%

As for the use site, respondents are presented with a choice of payment amounts based on whether they answered 'Yes' or 'Maybe' above (i.e. they indicated they were potentially willing to pay in principle) or assigned a £0 bid if they answered 'No' above (i.e. they indicated they were not willing to pay in principle). WTP values include both positive values and zero values, ensuring that the values are representative of the preferences of all visitors. All responses are used to estimate average and median willingness-to-pay for non-visited site galleries.

- **Across the four regional galleries, average WTP a one-off donation (for life of asset) for a non-visited gallery is £3.72 per person, with a lower bound of £3.20.** For comparison, this non-use gallery WTP is around 60% of the £6.10 non-use WTP elicited for Tate Liverpool in the 2015[58]. However, comparability is again limited, since the Tate Liverpool value was to support the work inside and outside of the gallery, including community outreach programmes, which were not included in the galleries non-use WTP in this study.
- **Between the four regional galleries, non-use average WTP ranges from a low of £3.16 for the Millennium Gallery in Sheffield, and a high of £4.29 for the Manchester Art Gallery in Manchester** (Table 3.14). The distribution of WTP across galleries is not wide, which provides greater confidence in the homogeneity of the galleries surveyed (and is reflected in the confidence intervals in the Total column).

Table 3.14 Gallery Non-use individual donation WTP values (one-off donation)

Gallery	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites)
Mean (std. err.)	£3.52 (£0.56)	£3.87 (£0.45)	£4.29 (£0.70)	£3.16 (£0.28)	£3.72 (£0.26)
Lower confidence interval (CI) (95%)	£2.41 - £4.63	£2.97 - £4.76	£2.90 - £5.67	£2.62 - £3.71	£3.20 - £4.23
Median	£1.25	£2.75	£2.25	£2.75	£2.25
Sample size	259	284	266	257	1066

57 Fujiwara et al. 2018

58 Bakhshi et al. 2015

Note: Star (*) indicates that the difference in WTP value within a given city and outside of that city is significant at 95% confidence level in two-sample t-test. There was no statistical difference found between the WTP values.

For respondents who said they were not willing to pay an entry fee to visit a gallery, 34% said that they didn't think they would ever visit the site (Appendix Table 6.10). Respondents who were willing to pay for a non-use site reasoned that they "may want to visit the gallery in the future" at 36% (Appendix Table 6.9). **Follow-up motivation data suggests that those who are willing to donate to non-visited galleries were in part motivated by future 'option' use values, while those with a zero WTP indicated that they were not willing to pay because they would not visit the site in the future.**

3.2.4.4 *Regional gallery WTP across scenarios*

- **Visitor WTP entry fee to access gallery was £5.40 per visit on average, with a lower bound of £5.01** (see Table 3.15).[59] This is a realistic figure in line with previous literature and slightly conservative compared to the prices paid at galleries for special exhibitions. Visitors who travelled further to the gallery were willing to pay more on average than those living locally, which may reflect the higher value they place in the site (in line with Travel Cost theory) or the fact that local visitors anticipate that they will pay more per visit payments into the future.
- **The experimental follow-up analysis of visitor WTP for expansion of gallery (randomised +10%/+20%/+30%) was £6.34 as a one-off donation (for life of the asset), with a lower bound of £5.59**. This is the first time that gallery visitors have been surveyed on their willingness-to-pay for an expansion of gallery facilities. Lack of statistical significance and inconsistencies in the results suggest that this experimental approach is not capable of eliciting marginal WTP values for changes to the gallery business as usual. As such, they should not at this stage be used in gallery expansion SCBA. We recommend that additional research be undertaken to explore the marginal WTP value of changes to gallery service offers, which may require Discrete Choice Experiments (DCE).
- **Non-visitor WTP to support gallery was on average £3.72 as a one-off donation (for life of the asset), with a lower bound of £3.20.** Non-use WTP donation for the existence of the gallery is lower than the visitor WTP for entry into the gallery. While these visitor and non-visitor payments are for different use and non-use values, we expect this difference given that non-visitors have not directly experienced the site and are paying for the benefits that other receive, as well as an option value for their future visits.
- While we are mainly interested in the pooled WTP values, there are some interesting differences between sites. The Manchester Art Gallery in Manchester repeatedly reported lower willingness-to-pay values across the scenarios, ranging from £5.62 for an expansion donation and £4.59 for an entry-fee. This could be due to the proximity of other art galleries nearby, creating competition in the willingness-to-pay values. Conversely, the Manchester Art Gallery also reported the highest non-use value at £4.29. The Millennium Gallery in Sheffield generally reported higher values across the valuation scenarios, from £6.02 for an entry-fee to £6.81 for an expansion donation.

59 We take a more conservative estimate of WTP based on the lower bound 95% confidence interval. This lower bound provides a representation of the lowest value that average WTP could reasonably have based on distribution of values within the sample.

Table 3.15 Regional gallery mean WTP value for each valuation scenario

Mean WTP for each scenario	Baltic Centre for Contemporary Art, Gateshead	Lady Lever Art Gallery, Liverpool	Manchester Art Gallery, Manchester	Millennium Gallery, Sheffield	Total (average across pooled gallery sites with lower bound)
Visitor WTP entry fee to access gallery (per visit)	£5.79	£5.67	£4.59	£6.02	£5.40 (£5.01)
Experimental visitor WTP for Expansion of gallery (randomised +10%/+20%/+30%) (one-off donation)	£7.25	£6.11	£5.62	£6.81	£6.34 (£5.59)
Non-visitor WTP to support gallery (one-off donation)	£3.52	£3.87	£4.29	£3.16	£3.72 (£3.20)

3.2.5 Validity testing

3.2.5.1 *Regional gallery visitor entry-fee WTP regression*

- Validity testing shows that WTP an entry fee for galleries was significantly and positively associated with household income in the pooled gallery sample, and for three of the four galleries (Appendix Table 6.11). This provides an acceptable level of confidence that WTP is driven by theoretically consistent income factors across the gallery sample.
- Further validity is provided by the statistical association between WTP and indicators of cultural engagement. The number of times a person had visited the gallery in the past year and their membership of a museum or gallery (not necessarily the one valued) were positively associated with higher WTP on average in the pooled gallery sample.
- Of some note, those who lived in the city of the gallery had lower WTP on average in the pooled gallery sample, driven by statistical significance in the Baltic Centre for Contemporary Art and the Lady Lever Gallery in Gateshead and Liverpool. Both of these cities have a number of art galleries in close proximity to the sites (e.g. in Newcastle and Liverpool), meaning that this lower WTP value held by city residents might reflect more options to visit art galleries nearby..
- Overall model fit was in line with previous benefit transfer studies for DCMS and Historic England, with the Adjusted R-squared showing that the models explain around 15% of the WTP in the pooled model, and up to 22% for the Millennium Gallery.

3.2.5.2 *Regional gallery visitor expansion WTP regressions (experimental)*

- Regression analysis shows that WTP for expansion of the gallery is associated with indicators of cultural engagement (Appendix Table 6.12): those who had visited the gallery more frequently in the past 12 months (significant for all models except the Manchester Art Gallery), those who have membership with a museum or gallery (significant in the pooled model and for the Millennium Gallery). Willingness-to-donate for the expansion of the gallery was also

significantly and positively associated with agreement (Strongly agree or Agree) that Art Galleries should be preserved for future generations. This was positively associated with higher WTP on average in the pooled gallery sample and for the Millennium Gallery.

- Household income is significantly and positively associated with WTP in the pooled expansion sample, which again provides evidence of the validity of the WTP results. The pooled coefficient is driven by three galleries – the Baltic, Manchester and Millennium Gallery. It is consistent that valuing the expansion of the gallery would be more strongly related to level of cultural engagement than socioeconomic factors since it likely consists of a major portion of non-use value (see section 6.4.2).
- The expansion scenario included a randomisation element that tested whether visitors had different WTP for different levels of expansion (10%, 20% or 30%, randomly presented to each respondent). Regression analysis shows that WTP did not vary significantly depending on what size of expansion the respondent saw. This reflects the non-linear relationship between percentage expansion and WTP identified in Section 3.2.4.2, where WTP was higher for a 10% expansion than a 20% expansion (but the 30% expansion had the highest average WTP). This may indicate some insensitivity to scope and the difficulty of eliciting marginal WTP for changes in a cultural service offering using CV surveys. We recommend that expansion values be treated as experimental and unvalidated, and not be used in expansion business cases without further analysis using additional SP methods (e.g. DCE) and larger samples.
- Overall model fit was lower than previous benefit transfer studies for DCMS and Historic England, with the Adjusted R-squared showing that the models explain only around 8% of the expansion WTP in the pooled model, as little as 2% for the Manchester Art Gallery and high as 25% in the Millennium Gallery. These results suggest that more detailed exploration of the expansion scenario may be required to fully understand why visitors are willing to pay for expansion of individual galleries. In part this may be due to the sample size split in the three-way randomisation, which requires more power to analyse and may therefore require a larger sample size going forward to understand better how and why people are willing to pay to expand regional galleries.

3.2.5.3 *Non-visited regional gallery WTP regressions*

- Non-use value for regional galleries was negatively and significantly associated with age in the pooled sample (Appendix Table 6.13). Household income was significant and positive in the pooled and two of the individual gallery models (Lady Lever and Millennium).
- There was no significant difference in WTP values between pure and impure non-users, which may indicate that the non-use value is held by residents in England is on average the same regardless of their level of engagement with similar cultural sites.

3.2.6 Transfer testing

We test how the simple unit benefit transfer can be applied to WTP values for regional galleries, both visitor use value (entry fee WTP), the experimental visitor expansion value, and non-visitor value. Comparing the observed mean WTPs for each policy site with the corresponding BT predictions shows how well the simple unit benefit transfer method would have worked if applied to that policy site. In particular, the greater the percentage

difference between the BT prediction and the observed mean WTP at a given policy site, the greater the transfer error. While differences in mean WTP values are expected between different sites, we only recommend transferring values between sites that are characteristically similar to avoid higher error rates. Note that errors of over 200% are common in cases where sites are not sufficiently homogeneous.

Summary of regional gallery transfer testing

- Both simple and adjusted transfer perform well, with all transfer errors below the 40% threshold recommend in the literature. As such, simple and adjusted benefit transfer can be used. While adjusted transfer performs slightly better for galleries WTP, both approaches are available for analysts when transferring WTP values to a gallery policy site.
- Function transfer also performs well for all gallery WTP values, with acceptable levels of transfer error. Although the transfer errors are slightly higher than the simple and adjusted unit transfer, the transfer tests indicate that function transfer can be used to tailor gallery WTP values to multiple characteristics of a gallery policy site. However, we note that this requires more information than many institutions will have available on their visitor characteristics, and that the function models have relatively low explanatory power, which is another consideration.
- Overall, we conclude that gallery WTP values are robust for all forms of benefit transfer. However, in the interest of avoiding unnecessary complication and risking an increase in transfer error, **we recommend that simple and adjusted transfer should be adopted**.

3.2.6.1 *Simple unit transfer*

Transfer errors (TE) for gallery WTP are low across the board and all below the threshold of 40% suggested as acceptable by the academic literature. We note that any transfer of WTP values between different institutions will incur some degree of transfer error (see Appendix Section 6.3.4.1 for detailed simple unit transfer testing tables).

- **Gallery visitor WTP simple unit transfer errors** range from 6% for Lady Lever Art Gallery to 27% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was significant only for the Manchester Art Gallery
- **Experimental gallery expansion WTP simple unit transfer errors** range from 4% for Lady Lever Art Gallery to 19% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.
- **Gallery non-visitor WTP simple unit transfer errors** range from 4% for the Lady Lever Art Gallery to 17% for the Millennium Gallery and Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant for all galleries.

For all three cases the simple unit transfer tests for visitor WTP entry fees fell within what is an acceptable range in the academic literature.

3.2.6.2 *Adjusted unit transfer*

Adjusted unit transfer takes the difference in one key characteristic between the study and policy populations (average household income) and adjusts WTP values to the context of the policy site. Transfer errors (TE) for gallery WTP for adjusted transfer tests are low across the board and all below the 40% threshold recommended in the literature (see Appendix Section 6.3.4.2 for detailed adjusted unit transfer testing tables).

- **Gallery visitor WTP adjusted unit transfer errors** range from 0.1% for the Baltic Centre for Contemporary Art to 12% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.
- **Experimental gallery expansion WTP adjusted unit transfer errors** range from 5% for the Manchester Art Gallery to 7% for the Baltic Centre for Contemporary Art and Lady Lever Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.
- **Gallery non-visitor WTP adjusted unit transfer errors** range from 1% for the Lady Lever Art Gallery to 19% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.

Overall, adjusted unit transfer works better for all gallery WTP values (use, expansion, and non-use) with an acceptable range of transfer errors across the board and lower transfer errors overall in adjusted transfer tests compared to simple unit transfer.

3.2.6.3 *Function transfer*

Function transfer takes the difference in multiple characteristics between the study and policy populations (which may include the age, gender, and income levels of the relevant populations) and uses multivariate regression coefficients to adjust WTP values to these more detailed contextual factors at the policy site. The function transfer errors reported in Appendix 6.3.4.3 for gallery WTP are low across the board and all below the 40% threshold recommended in the literature.

- **Gallery visitor WTP function transfer errors** range from 2% for the Baltic Centre for Contemporary Art to 13% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was significant only for Manchester Art Gallery.
- **Experimental gallery expansion WTP function transfer errors** range from 2% for Lady Lever Art Gallery to 12% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.
- **Gallery non-visitor WTP function transfer errors** range from 3% for the Baltic Centre for Contemporary Art to 16% for the Manchester Art Gallery. The mean difference between observed and predicted WTP was not significant in any cases.
- Overall, function transfer works best for all gallery WTP values (use, expansion, and non-use) with an acceptable range of transfer errors across the board, but especially for visitor WTP, and slightly higher transfer errors compared to simple and adjusted unit transfer.

One note of caution is that the low explanatory power of the reduced WTP regressions for value transfer, as measured by the low adjusted R squared, means that these regressions are not successful at predicting the

individual WTP values (none of the regressions explain more than 10% of WTP variation within the relevant study sample). This raises questions about the robustness of function transfer based on these results. For this reason, **we recommend that Benefit Transfer be performed using simple and adjusted transfer approaches rather than function transfer**, as these transfer approaches perform well in transfer testing, and are not subject to the informational constraints and low predictive power found in the function transfer testing. It also limits the amount of variation that can be introduced in benefit transfer, as it means that it is not possible to introduce gallery characteristics into the function transfer. Consequently, WTP can only be varied by one attribute in the adjusted transfer (that of visitor or local non-user income levels). Future research should seek to explore function transfer across a large number of sites (varying by attributes such as size and type of collection) and with larger sample sizes, to provide the statistical power necessary to create function transfers that vary by site characteristics. However, that is beyond the current scope of the report, given the sampling constraints, both around number of galleries and sample sizes within each gallery.

3.3 Application to Social Cost Benefit Analysis

3.3.1 Use value

We recommend that readers consult the Arts Council England Guidance Note on *"How to quantify the public benefit of your Museum using Economic Value estimates",* the principles of which also apply to transfers of gallery (and theatre) WTP values. You should consult with an economist or valuation professional before applying the WTP values to your own institutions, as it may be necessary to correct and adjust the values using your own in-house data, or primary data collection through your own surveys. In such instances where the values are applied to SCBA or institutional business cases, these calculations should be informed by someone with experience in non-market valuation and benefit transfer. Please consult Arts Council England or Simetrica-Jacobs and Nesta if you have any queries about this.

As an overarching set of best practice rules, before applying any WTP values to a new business case, it is important to scope the characteristics of the gallery and the valuation scenario relevant to SCBA (visitor value, expansion value, non-visitor value) against those of the sites used in this survey (see section 6.1.1 for regional gallery characteristics in this study) to determine the comparability between sites.

For art galleries use and non-use values (visitor WTP use value, elicited by an entry fee per visit, and non-visitor WTP non-use value, elicited by a one-off donation over the life of the asset), we recommend simple or adjusted transfer techniques for simplicity as it requires less statistical modelling and introduces a lower rate of transfer error. If the visitor population has characteristics that differ those in the report, such as significantly lower average visitor annual income, it is recommended to use an **adjusted benefit transfer**. It may be the case that varying WTP values based on size of galleries and their content could be a significant driver of variation in the values of galleries. However, to test this would require a larger sample of surveyed institutions (each with a minimum sample of c.200 respondents), in order to analyse between groups that would be defined on gallery-level characteristics[60]

60 While the Arts Council England Guidance Note on *"How to quantify the public benefit of your Museum using Economic Value estimates" is aimed at museums, the principles and application of values remain the same.*

(potentially 3+ galleries in each sub-category of size and content, meaning a sample of upwards of 10 institutions in total).

*3.3.2 **Aggregation***

As noted above, this report is not designed to provide guidance on how to apply WTP values into a business case or SCBA. Detailed guidance for aggregating benefit transfer values and applying them to business case evaluations is provided in the ACE Guidance Note "*How to quantify the public benefit of your Museum using Economic Value estimates*", published alongside this report.

However, given that the purposes of Benefit Transfer is to transfer values from the study sites (such as those in this report) to a 'policy site', and that analysts will likely be expected to aggregate these values to the total sample of beneficiaries (both visitors and non-visitors), we provide information below that may help to inform the process of aggregating individual-level WTP values up the relevant population of visitors or non-visitors.

Table 3.16 summarises the process for aggregating regional gallery WTP values. For Simple Unit Transfer, the analyst simply needs to multiply the average visitor WTP across the pooled sample of four galleries by total annual visits to the gallery being evaluated. This value provides a representative use value which is equivalent to a hypothetical individual entry-fee for accessing the art gallery.

Expansion values are based on a pilot study. Given the inconsistencies in the findings, we do not recommend attempting to transfer them to business cases or SCBA without further research and sensitivity testing.

Non-use WTP was elicited via the CV survey as a one-off donation. There is no indication in the survey that people would be willing to pay this amount in an annual recurring payment. For the purposes of calculating Present Value over multiple years, the analyst must therefore assume this is a one-off payment for the life of the asset. However, this will produce very low present value figures over a thirty-year evaluation period, since it assumes there is no ongoing non-use value beyond the year the value was given. This demonstrates one of the limitations of SP surveys: that respondents are theoretically constrained by the way that the payment scenario is presented to them. However, they may also ignore this information, and in other studies, follow-up questions have shown that respondents are often insensitive to the payment term presented.[61] Thus, while the survey designer may assume that respondents would be willing to pay a donation indefinitely or within the time period defined in the survey text, in practice respondents may have a budget envelope that limits such a payment to a finite number of years. The survey designer has two choices here: to collect a significant amount of follow-up information with which to inform the payment term for aggregation over multiple years; or to set a finite payment period. The choice of payment term is therefore important.

We recommend that non-use values should be aggregated in a conservative way to account for the specific uncertainties that exist around SP elicitation of non-use values.[62] This could include a strict interpretation that the non-use WTP donation is intended as a single payment for the life of the asset. However, the analyst may have a

61 Kim and Haab 2009

62 For discussion of the issues and uncertainties around non-use WTP values, see Bandara and Tisdell 2005.

justification why they believe that the non-use value of the asset would apply over a longer period of time, and if such a justification can be made then they may be able to estimate aggregate non-use Present Value over a longer payment period. We recommend that this should only be done with the expertise of a specialist in non-market valuation methods. Considerations around incorporation of non-use values and one-off payments into present value calculations will be an important topic for future research within the DCMS Culture and Heritage Capital framework.

Another approach to addressing the uncertainties that arise when aggregating up non-use WTP would be to limit the sample of non-users to a relatively local 'catchment area'. Aggregation of non-use values to the national population is likely to be disproportionate since it assumes that the non-use values of the institution spill over equally to the country as a whole. If this were assumed to be the case for every gallery in the country, this would lead to a large and unrealistic aggregate non-use value for all galleries in England. One approach to avoid this would be to restrict aggregation of non-use values only to the local population. Although this would likely lead to some loss of values from those living further afield who may well hold non-use values for the non-visited gallery, we believe that this approach avoids an over-attribution of non-use value to institutions as part of the SCBA aggregate analysis.

Table 3.16 Aggregation of Willingness-to-pay values to your institution

	Use value	Non-use value
WTP value	Visitor (use) WTP value	Non-visitor (non-use) WTP value
Duration	Per visit	One-off (in year zero)
(Multiplied by)	X	X
Your institution's data	Total annual visits	Local population households (within your local visitor catchment area)

Double-counting: There is no risk of double-counting when combining the **annual visitor willingness-to-pay aggregated score** with the **local population non-visitor willingness-to-pay aggregated score** to calculate the **total non-market value of your gallery,** given that they relate to different population groups. As recommended in the ACE Guidance Note "*How to quantify the public benefit of your Museum using Economic Value estimates*", local 'user' households should be removed from the sample if known. In the absence of precise local survey data, in estimating the number of local non-users 20% of the local catchment area's population should be deducted from the local population to account for local users before aggregating non-visitor (non-use) values. However, the analyst should also beware of incorporating other non-market valuation methods alongside WTP values. For instance, valuations based on travel cost or house price uplift studies could constitute double-counting with WTP values, as both approaches elicit equivalent prices for the welfare impacts of cultural institutions.

Aggregation of WTP values within an SCBA evaluation may also be able to incorporate welfare weighting, as recommended by HM Treasury Green Book (2018).[63] This permits using distributional weights to adjust for diminishing marginal utility of income in situations where there is a difference in the socioeconomic characteristics of the population in the investment area compared to the national or regional average. This can be especially

63 H. M. Treasury 2018

useful in cases where the user or non-user group is made up of a high proportion of individuals from lower socioeconomic backgrounds, to demonstrate a higher welfare weighted WTP value which is unconstrained by the relatively smaller household budgets of these groups.

As noted above, aggregation should always be performed with the advice of an economist with experience of non-market valuation and Benefit Transfer methods.

4 Regional Theatres

This section details the findings from the Contingent Valuation analysis of regional theatres in England.

4.1 Survey design

A survey was designed for each of the four theatres (Birmingham Repertory Theatre, Leeds Playhouse, Manchester Royal Exchange Theatre, and Theatre Royal Plymouth) to collect WTP values for:

- Visitor WTP to:
    - keep the theatre in the city it is currently in (as an annual tax over 3 or 5 years);
    - support the continued provision of community-outreach programmes (as a one-off payment for the life of the programme).
- Non-visitor WTP to:
    - maintain one of the four theatres a respondent indicated they had not visited in the past three years from closing (as an annual tax over 3 or 5 years);
    - support the continued provision of community-outreach programmes for one of the four theatres a respondent indicated they had not visited in the past three years (as a one-off payment for the life of the programme).

Following the same online data collection process as the art galleries surveys, a target of 200 visitors and 200 non-visitors from a panel of adult residents in England. Visitors were defined as having visited at least one of the theatres in the past three years.

The non-visitor sample is composed of a mix of individuals who had visited at least one of the other three sites in the past three years ('impure' non-visitors), and of individuals who had not visited any of the sites ('pure' non-visitors). This provides a balance in the non-users, as the impure non-user group are arguably more culturally engaged, and means that we do not have to apply a correction to the non-use sample as in the galleries case study (on the basis that comparability between the regional museums data and the regional theatres data would not be as strong as between museums and galleries). We discuss this in further detail in Appendix Section 6.1.2.

The non-visitor sample is also composed of a mix of local non-visitors, from the Government Office Region in which the institution is based (e.g. West Midlands), and non-local non-visitors in the national population. We test for differences in the values stated by local and non-local non-visitors by splitting out and compare mean WTP between local and non-local non-visitors, to detect any significant differences between these groups, providing useful additional information on non-visitor WTP for maintaining a theatre in the city.

As outlined in Section 4.3.4, we recommend that non-use WTP values are used with consideration of the uncertainties present in aggregating up non-use WTP. One approach to avoid over-estimates of non-use value in the aggregation would be to aggregate non-use values only to the local population. Although this would likely lead to some loss of values from those living further afield (who may well hold non-use values for the non-visited theatre) we believe that this approach avoids an over-attribution of non-use value to institutions as part of the SCBA aggregate analysis. In this way, non-use values are aggregated to a more tightly defined catchment area; for instance, the local region to avoid over-attribution of non-use value to any single institution. For this reason, the combined non-use sample in this report is weighted to reflect the attributes of the regional population around each institution, using census data on age and gender.

These valuation scenarios are explained in sections 4.1.2-4.1.4

4.1.1 Data cleaning

As with the regional art gallery survey, the theatres survey included pre-screening questions at the start that filtered out respondents who were flagged by the survey host site, Qualtrics, as spam (*n*=0) or were under 16 years of age (*n*=8).

The final theatres sample excludes unreliable responses, such as:

- Those who gave multiple open-text responses that were unrelated to their respective questions (*n*=30),
- Those with unreliable responses (refer to section 6.1.6),
- Those who said they chose a WTP amount because they did not believe they would really have to pay (*n*=88) since this is an indication that the respondents did not answer the question in a realistic way,
- Those who completed the survey in an unrealistically fast time (completed within less than five minutes; *n*=60).

By excluding these respondents, we were left with 1,269 valid respondents for the theatres sample. Once again, to address any bias from excluding unreliable responses, an ex-post analysis (logistic regression) was conducted found no significant selection effects within the samples of exclusions.

4.1.2 Valuation scenario 1: Visitor WTP for a previously visited theatre

The valuation of theatres presents a challenge as there appears no consistent approach to dealing with the fact that the theatre is supported by tax-payer funding and/or payment of fees to see theatre performances (so called 'mixed good bias') in academic research. Several studies[64] have identified separate user and non-user subsamples and made separate willingness-to-pay calculations for these different user groups. We employ this subsample approach in our theatres survey (and our art galleries survey), by defining users as respondents who have visited the theatre we are studying within the last three years, conversely, non-users are respondents who have not visited the theatre we are studying in that time period. All respondents were randomly assigned to one of the four study theatres they indicated they had visited in the last three years as their use site.

64 See, for example, Chang and Mahadevan (2014) and Thompson et al. (2002).

Good valued: Keeping their assigned theatre in the city it is currently situated in. To account for the risk that respondents would value the theatre building itself (rather than the institution of the theatre) it was explicitly mentioned in the contingent scenario that if the theatre were to move out of the city, the building would be maintained by its new owners but would no longer house a theatre. Moreover, we included explicit text requesting respondents to 'not consider the aesthetic value of the building which will continue to be preserved regardless of its new use' during the WTP questions.

Payment vehicle: To account for the fact that some visitors live locally and could pay a council tax, and that other visitors are non-local, each respondent was displayed either an annual council tax (if the closest city to the respondent's home address is the city their assigned theatre is situated in) or an annual national tax (if the respondent does not live near the city their assigned theatre is situated in). This tax was randomised over a duration of either three years or five years to test for payment term sensitivity. The inclusion of a finite end date for the annual tax payment is important for avoiding insensitivity to scope in the payment term (if an endpoint is not defined, we have no way of verifying which respondents would pay indefinitely and which respondents would only be willing to pay for a shorter period, resulting in implications for the total or present value).[65] For Social Cost Benefit Analysis (SCBA), payment duration is not an issue in the case of visitor WTP, because it is always assumed to be the annual value in that year for the number of visitors that the institution is projected to have.

A compulsory payment, such as a local or national tax, increases *consequentiality* of the valuation survey (i.e. it reduces 'free riders' or those respondents who underpay or refuse to pay, by including a compulsory payment). National tax was employed to overcome the risk that non-local respondents (i.e. those who do not live in the same city as their assigned theatre) would free ride and therefore give unreliable WTP responses since they do not have to pay council tax for a city that they do not live in. A lack of realism may be introduced to the survey if respondents do not believe a national tax would be raised to support a regional theatre. Despite this concern, this method presents a better approach than having a donation as the payment vehicle, since any the lack of realism from a national tax payment vehicle could be overcome ex-post, whereas the incentive incompatibility of a donation payment vehicle could not.

Use valuation scenario: Respondents were given information about the building the theatre is housed in. This included location, the quantity of seating and the facilities it houses, the type of productions the theatre organisation is known for, and information on accessible shows (such as dementia-friendly performances). Respondents were told that the theatre organisation is responsible for all the shows performed at the theatre and without it, the theatre would cease to exist. Photographs of the theatre and its performances were included with the information.

65 Kim and Haab 2009

Contingent scenario: Respondents were told that most of the income for theatres comes from ticket sales and donations, but that a significant amount comes from Arts Council England.[66] They were then asked to imagine a scenario where cuts in funding have meant the theatre might have to move out of the city to a more affordable location, meaning local residents would no longer be able to enjoy a show in the theatre without "substantial travel". Additional funding would be required from taxpayer contributions to guarantee that the theatre remains at its current residence. The duration of the increased annual taxes would be for three or five years (randomly allocated) and if the theatre were to move out of the city, the building it is housed in would not fall into disrepair.

4.1.3 Valuation scenario 2: WTP for community-outreach programmes (visitor and non-visitor)

As a follow-up WTP question in the theatres survey, we present information on community-outreach programmes (the experimental follow-up expansion WTP would not have been applicable given that theatres do not have the capacity to expand in the same way art galleries can). The follow-up valuation scenario valued supporting the theatres' provision of workshop and community-outreach programmes. Given that many theatres provide such community programmes, including all four of our shortlisted theatres, this was a suitable solution.

All respondents were presented with the follow-up community outreach programmes valuation scenario in relation to the theatre they valued in the use valuation scenario. The expansion scenario was asked about the same theatre as above.

Good valued: Continued provision of community-outreach programmes offered by the theatre company.

Payment vehicle: One-off donation for life of the programme.

Community outreach programme scenario: Respondents were informed that as well as artist-development programmes and school workshops, the theatre company provides community outreach programmes and were provided information about them. This included information about who the programme is aimed at and what the programme entails. Photographs of the community-outreach programmes in action were presented.

Contingent scenario: Respondents (both visitors and non-visitors) are asked to imagine a scenario where, due to reduced funding, the theatre might no longer be able to provide the full range of community-outreach programmes. To continue to run these programmes, an alternative source of funding would be required through voluntary donations from the public. If respondents had previously agreed to pay an increase in tax in the first valuation scenario, they are told that this would be an additional payment to the amount they agreed to pay. Respondents were then asked if they would be willing to pay a one-off donation, even if this was only a small amount.

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66 Note, the ACE funding was a factor only for internal scoping purposes. The funding source itself does not affect the cognitive process of how much a theatre is worth to the respondent. The scenario is designed to imagine a scenario where funding has been cut, such that its continued existence is contingent on their stated WTP. Therefore, these values can be transferred to a theatre receiving funding from any source.

Altruistic (non-use) value: Visitor and non-visitor WTP for theatre community outreach programmes represents a non-use value in both cases, on the assumption that respondents are for the most part not direct beneficiaries of the community outreach programmes, but are valuing it altruistically for the social benefit it provides to others. Any direct value to beneficiaries would have to be estimated through a separate evaluation. We are confident that the two valuations (non-use value here, and direct value to beneficiaries in any independent evaluation) could be combined with only minor risk of double counting, since the majority of visitors and non-visitors surveyed were not beneficiaries of the community outreach activities.

4.1.4 Valuation scenario 3: WTP for a non-visited theatre

For regional theatres, separate visitor and non-visitor subsamples were determined by visitors and non-visitors to the sites (Table 4.1). Thereby, respondents who had visited one or some of the sites provided a use value for a site they had previously visited and a non-use value for a site they had not previously visited. This allowed us to determine separate use and non-use values within the same survey instrument.

Non-visitors were composed of both visitors to other study theatres who served as a non-visitor sample for sites they had not visited (i.e. 'impure non-users'), and 'pure non-users', collected through a theatre booster data sample who had not visited any of the four sites of interest (although they could have visited other theatre sites that were not listed).

We note that there may be underlying differences in the characteristics of so-called '*pure non-users'* (those who have not visited one of the four theatres in the past three years) and *'impure non-users'* (those who have visited at least one of the four theatres in the past three years). For instance, those who have not visited any of the four theatres may have lower levels of cultural engagement in general. We would expect that those who are less engaged with culture would have lower WTP for a theatre they have not visited. We therefore attempted to recruit a balanced sample with the inclusion of some 'pure non-users'. This issue is discussed in detail in Appendix Section 6.1.2. As non-visitors had not previously visited the non-use site, the visitor WTP valuation scenario was closely followed by proposing an increase to a local or national tax (dependent on the respondent's location to the site).

All respondents were randomly allocated to one of the four theatres they had indicated they have not visited within the last three years as their non-use site.

Good valued: Maintaining the existence of a theatre the respondent has not visited within the last three years. The focus in Scenario 3 was the maintenance of the theatre's existence, while the focus in Scenario 1 was on keeping the assigned theatre in the city where it currently stands. As in Scenario 1, to account for the risk that respondents would value the theatre building itself rather than the institution of the theatre, it was stated in the survey scenario that if the theatre were to move out of the city, the building would be maintained by its new owners but would no longer house a theatre. We also included explicit text requesting respondents to 'not consider the aesthetic value of the building which will continue to be preserved regardless of its new use' during the WTP questions.

Payment vehicle: Annual council tax for 3 or 5 years (if the closest city the respondent lives near is the city their assigned site theatre is situated in) or annual national tax (if the respondent does not live near the city their

assigned site theatre is situated in). This tax was randomised over a duration of either three years or five years. As above, the inclusion of a finite end date for the annual tax payment is important for avoiding insensitivity to scope in the payment term. For SCBA purposes, and to err on the side of caution, it is advised to treat the non-visitor annual payment term as a midpoint between 3 and 5 years (4 years) and multiply this by the relevant local population of households. However, in some contexts, the analyst may wish to argue that the benefits of the institution would be experienced throughout a person's lifetime. In such circumstances, justification should be provided to account for the assumption of ongoing benefits to the non-visitor population. Note this problem does not apply when aggregating the galleries non-visitor WTP because that is defined as a one-off donation.

Non-use valuation scenario: The non-visitor valuation scenario provided respondents with the same information that was provided for the visitor valuation scenario, specific to the non-visited site.

Contingent scenario: The non-visitor contingent scenario follows the same process as the visitor contingent scenario, where due the difficult financial situation many regional theatres in England have had cuts in funding while having to cope with increased maintenance and operating costs. The cuts in funding have meant that the non-visited theatre is faced with closure and that to guarantee the continued production of its own productions at the current site, additional funding would be required from taxpayer contributions. Those surveyed are also told the duration the increased annual taxes would need to be collected for (randomised between three and five years) and that, were the theatre were to move out of the city, the building it is housed in would not fall into disrepair.

Table 4.1 Summary of the valuation scenarios each type of respondent receives

Type of respondent	Use (keep in city and support community programmes)	Non-use
Visited all four theatres ('pure users')	Randomised between the four theatres	X
Has visited between one and three of the four theatres ('impure non-users')	Randomised between the theatres that were visited	Randomised between the theatres that were not visited
Has not visited any of the four theatres ('pure non-users')	X	Randomised between the theatres that were not visited

4.2 Results

The theatres survey ran from 6th February - 5th March 2020. Survey sampling was designed to elicit the views of visitors of theatres, defined as those who had visited one of the four shortlisted theatres in the past three years. In order to provide robust values samples need to be representative of the visitors to the theatres. We therefore compare the sample characteristics with some benchmarks.

4.2.1 Sociodemographic characteristics

While the Audience Agency's Audience Finder data is broadly comparable to the primary data in terms of the gender of art gallery visitors, we saw differences in age groups. When comparing our primary gender and age group data with that of Audience Finder collected at each of the four theatre sites (refer to section 6.1.5), we see that our sample has recruited fewer females, a larger proportion of younger generations (35 years and under) and fewer older generations (65 years and over). The demographics of our primary data visitor sample (unweighted) is

presented in Table 4.2 and our primary data non-visitor sample (split between pure and impure non-users) is presented in Table 4.3.

To ensure representativeness of the population, throughout the subsequent analysis we weight the user samples by user age demographics collected from the Audience Finder survey and non-user samples by age and gender from adult regional data from the 2011 census, as outlined in section 6.1.5.

Table 4.2 Regional theatre Visitor socio-demographic characteristics – unweighted

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Female: % (n/N)	56.7% (123/217)	55.1% (114/207)	52.0% (118/227)	53.6% (104/194)
Age: mean (se)	38 (1.0)	39 (1.0)	39 (0.9)	38 (1.1)
Household annual income (£): mean (se)	£40,409 (£2,049)	£41,505 (£2,171)	£44,358 (£2,011)	£48,426 (£2,424)
Has dependent children under 16 years: % (n/N)	55.6% (120/216)	52.7% (109/207)	53.5% (122/228)	51.0% (99/194)
Married/Civil Partner: % (n/N)	52.1% (113/217)	45.6% (93/204)	45.6% (103/226)	56.2% (109/194)
University education % (n/N)	47.9% (104/217)	55.3% (114/206)	49.1% (112/228)	52.6% (102/194)
In employment (full-time, part-time, self-employed): % (n/N)	84.9% (185/218)	79.5% (163/205)	78.4% (178/227)	79.9% (155/194)
Current resident of city: % (n/N)	35.3% (77/218)	29.0% (60/207)	45.6% (104/228)	21.1% (41/194)

Notes: 'Current resident of city' refers to people whose nearest city is the one that their assigned theatre is situated in. Weighted demographics reported in Appendix 6.1.5.

Table 4.3 Regional theatre Non-visitor socio-demographic characteristics – unweighted

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Impure Non-Visitors				
Female: % (n/N)	54.6% (83/152)	55.1% (81/147)	67.8% (40/59)	57.4% (89/155)
Age: mean (se)	40 (1.2)	39 (1.2)	40 (2.1)	39 (1.1)
Household annual income (£): mean (se)	£40,422 (£2012)	£41.655 (£2441)	£35,278 (£3283)	£40,889 (£2077)
Has dependent children under 16 years: % (n/N)	46.4% (71/153)	41.8% (61/146)	33.9% (20/59)	52.6% (82/156)
Married/Civil Partner: % (n/N)	45.7% (69/151)	44.2% (65/147)	47.5% (28/59)	40.6% (63/155)
University education % (n/N)	47.1% (72/153)	41.5% (61/147)	48.3% (28/58)	54.8% (85/155)
In employment (full-time, part-time, self-employed): % (n/N)	81.6% (124/152)	73.5% (108/147)	66.1% (39/59)	82.1% (128/156)
Current resident of city: % (n/N)	2.6% (4/153)	0.7% (1/147)	0.0% (0/59)	0.0% (0/156)
Pure Non-visitors				

Female: % (n/N)	62.4% (58/93)	54.7% (52/95)	57.9% (81/140)	52.0% (53/102)
Age: mean (se)	50 (1.6)	55 (1.6)	54 (1.2)	54 (1.7)
Household annual income (£): mean (se)	£26.203 (£1906.01)	£27,233 (£1878.38)	£32,218 (£2043.49)	£26,168 (£2153.98)
Has dependent children under 16 years: % (n/N)	26.9% (25/93)	17.9% (17/95)	22.1% (31/140)	13.9% (14/101)
Married/Civil Partner: % (n/N)	52.7% (49/93)	51.6% (48/93)	58.0% (80/138)	47.5% (48/101)
University education % (n/N)	26.9% (25/93)	37.6% (35/93)	34.8% (49/141)	30.7% (31/101)
In employment (full-time, part-time, self-employed): % (n/N)	49.5% (46/93)	48.4% (46/95)	50.0% (70/140)	32.0% (33/103)
Current resident of city: % (n/N)	100% (93/93)	100% (95/95)	100% (141/141)	100% (103/103)

*Notes: 'Current resident of city' re*fers to people whose nearest city is the one that their assigned theatre is situated in. Weighted demographics reported in Appendix 6.1.5.

In all subsequent tables in Section 4.2, we report only weighted figures.

4.2.2 Attitudes to art and culture

Of the total visitor sample, 54% had visited a theatre within the past 12 months and 26% listed arts and culture amongst the top five areas public funds should be spent on (refer to Table 4.4). Compared to non-visitors (i.e. those that had not visited any of the four theatre sites or had visited another site but provided a non-use value for another theatre) where 41% had visited a theatre within the past 12 months and only 18% considered that arts and culture should be among the top five areas for public spending. This suggests that our visitor sample was more culturally engaged than our non-visitor sample.

Table 4.4 Regional theatre visitor and non-visitor attitudes towards art and culture

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange	Theatre Royal Plymouth	Total
Visitor attitudes					
Visited a theatre (play/drama, musical, pantomime) in the last 12 months (%)	52.6%	58.6%	52.5%	49.6%	54.3%
Arts or culture amongst the top 5 priorities for public spending (%)	25.1%	29.1%	27.8%	20.4%	25.7%
Non-visitor attitudes (pure and impure non-visitors)					
Visited a theatre (play/drama, musical, pantomime) in the last 12 months (%)	47.6%	41.2%	33.8%	38.8%	40.6%
Arts or culture amongst the top 5 priorities for public spending (%)	20.3%	18.5%	11.3%	21.2%	18.2%

As depicted in Figure 4.1-

Figure 4.3, most respondents agreed that preserving theatres is important for current and future generations (76%-83%), visiting theatres increases wellbeing (79%-85%), and that theatres contribute to the identity of the city (81%-86%). This strongly suggests that our sample holds a significant value for theatres.

Figure 4.1 Visitors attitudes: visitors that agree or strongly agree that Theatres should be preserved

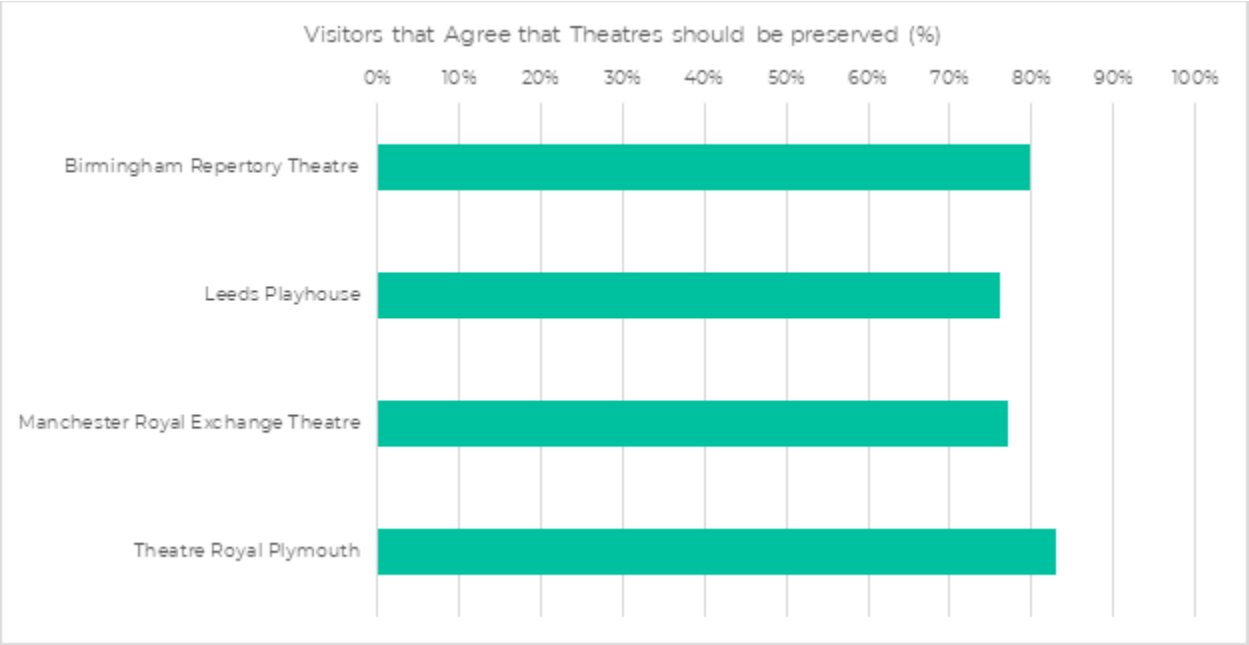


Figure 4.2 Visitor attitudes: visitors that agree or strongly agree that Theatres improve wellbeing

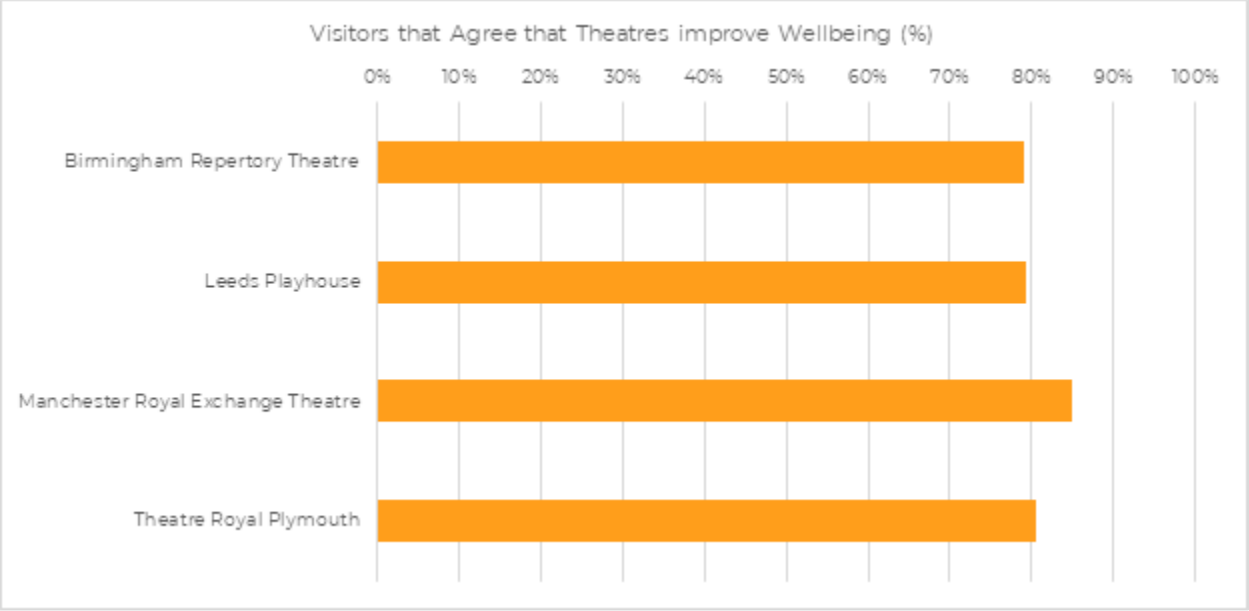
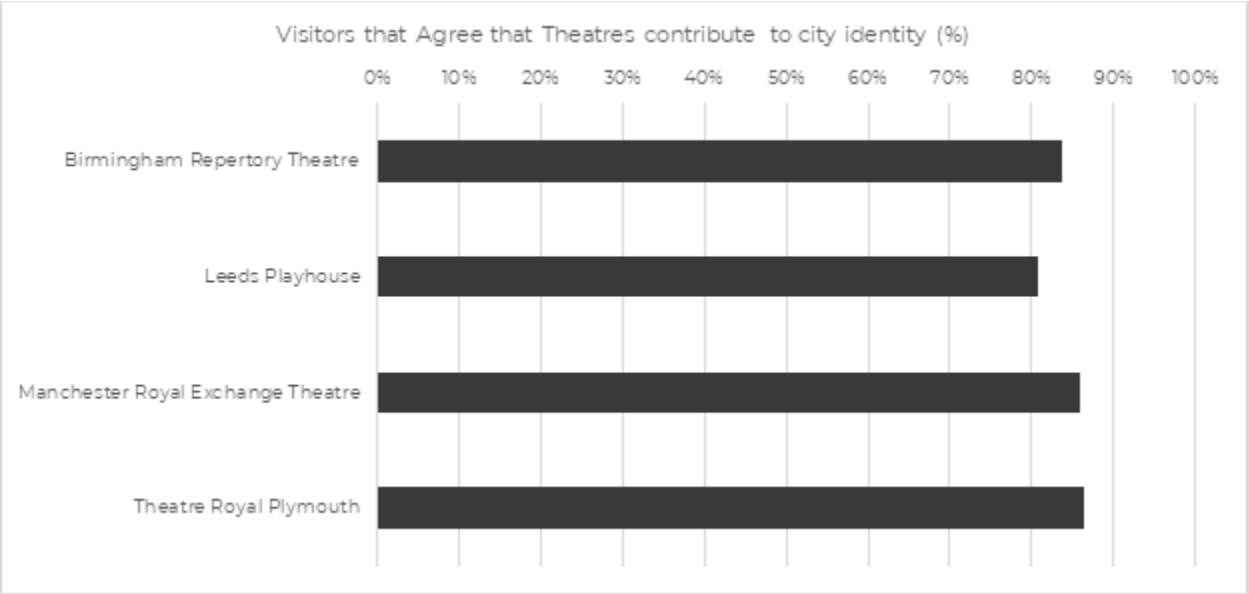


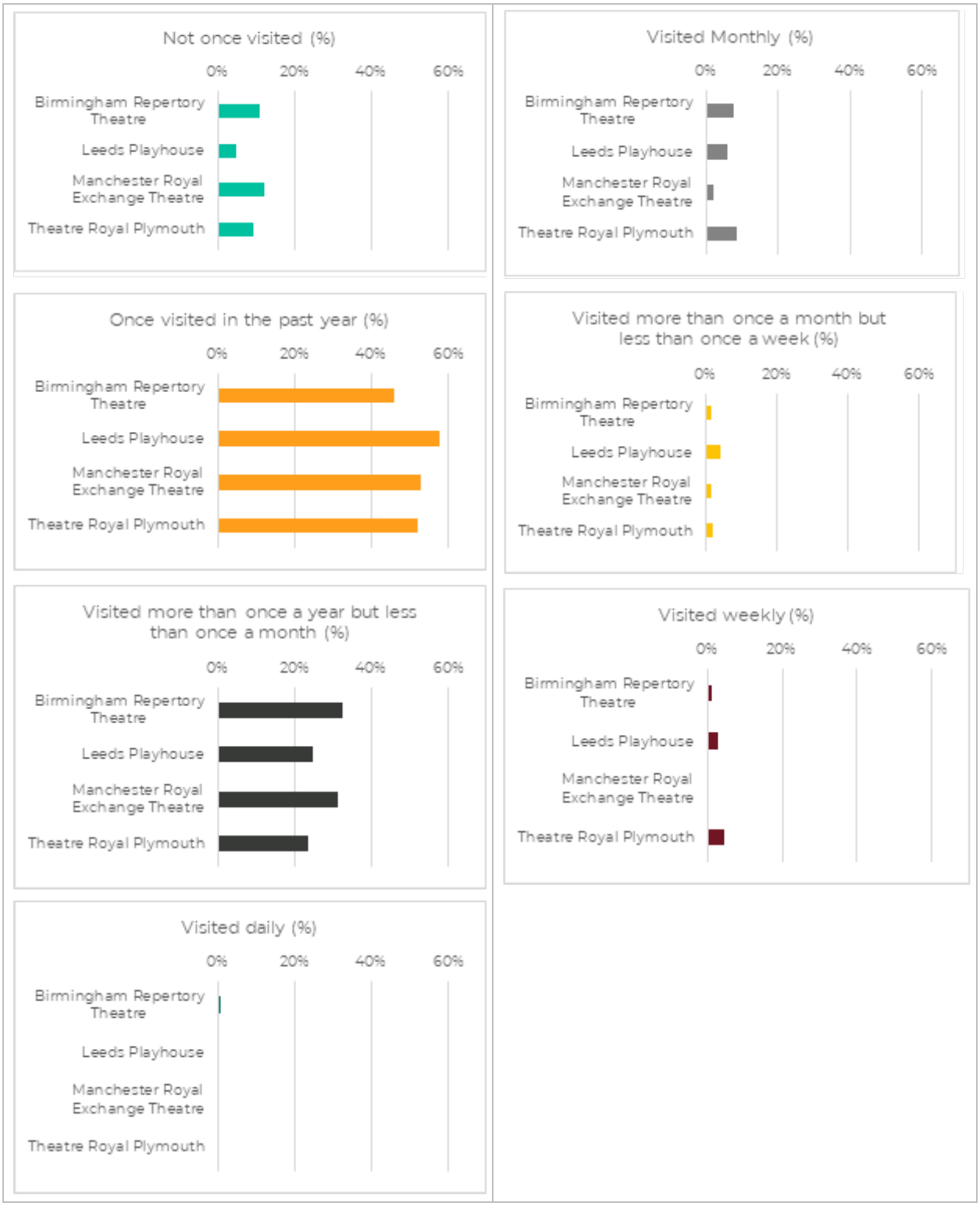
Figure 4.3 Visitor attitudes: visitors that agree that Theatres contribute to city identity



4.2.3 Site visits

Figure 4.4 presents respondents' self-reported site visits within the past 12 months (as elsewhere, visitors were defined by a visit within the past 3 years). Most respondents had visited once in the past year (46%-58%). A smaller proportion (between 4% and 15%) could be considered very regular theatre visitors, reporting having visited at least once a month.

Figure 4.4 User visits within the past 12 months



4.2.4 WTP values

As with the galleries survey, a payment card elicitation mechanism was used to elicit willingness-to-pay values for each of the valuation scenarios. Values elicited from payment cards are therefore lower bounds of respondents' actual willingness-to-pay. By using a mid-point between the payment card amount chosen and the next amount on

the payment card, this allows us to determine an individual's actual willingness-to-pay. For general applications, we calculate the mean willingness-to-pay value of the sample as it represents an average value for the population (which can then be aggregated by the population size).

A pilot survey established the appropriate range of WTP values to be included in the survey.[67] The presentation and calculation of WTP values was the same as in the galleries survey, except the hypothetical scenario used to estimate WTP values for theatres was a tax. We added text into the WTP questions which specified a time period for which the increase in tax would last.[68]

4.2.4.1 *Regional theatre visitor WTP tax to keep theatre in city (annual tax 3 or5 years)*

To understand how much visitors value the maintenance of theatres in their respective cities, the survey proposed a hypothetical scenario where the theatre would move to another city and asked respondents for the maximum increase to their taxes (local or national dependent on the respondent's location) to keep the theatre in the city.

When asked if they were prepared in principle to pay an increase to their taxes, 53% of respondents said 'Yes' or 'Maybe' (see Table 4.5), ranging between 43% who were not willing to pay in principle to support Leeds Playhouse and 51% who were not willing to pay in principle to support Birmingham Repertory Theatre.[69] A broad 50/50 split between those willing and not willing to pay in principle is in line with previous valuation studies in the cultural sector. We explore the motivations that drive WTP in regression analysis in the Technical Appendix (Appendix Table 6.26).

Table 4.5 Annual tax increase to keep the theatre in the city (visitors): Willingness-to-pay in principle

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Yes	34.6%	39.5%	35.9%	31.4%	35.4%
Maybe	14.2%	17.2%	16.7%	21.8%	17.4%
No	51.1%	43.3%	47.4%	46.8%	47.2%

As is standard in CV surveys, WTP values include both positive values and zero values to ensure that the average and median values are representative of the preferences of all visitors. Dependent on their response (as shown in Table 4.5), respondents are either presented with a choice of payment amounts (if they answered 'Yes' or 'Maybe' above i.e. they indicated they were potentially willing to pay in principle) or assigned a £0 bid (if they answered 'No' above i.e. they indicated they were not willing to pay in principle).

67 We conducted a pilot survey on 29th January 2020 using a quota-based sample of 49 online panel respondents. Based on the feedback from the Galleries surveys, a wider range of values were supplied to respondents. The actual WTP values selected by respondents did not indicate that any additional values needed to be added to the payment card.

68 The time-period was randomised between three and five years to avoid anchoring bias and enable ex-post testing of payment term scope sensitivity.

69 This could potentially be explained by the lower level of satisfaction ratings reported for Birmingham Rep (see Table 4.8 Condition of). However, t-tests found no statistical significance in the association between those who consider the theatre's programmes and performances in good or fair condition and likelihood to pay in principle.

- **Across the four regional theatres, willingness-to-pay an increase to taxes to maintain the theatre in its city is £13.10 per household per year on average among visitors over a three- or five-year period, with a lower bound of £11.08. The median willingness-to-pay was much lower at £5.50 for all four sites. This shows that the £13.30 reflects very high valuations among some respondents (with a handful of respondents stating values above £40, as demonstrated in Appendix Figure 6.5), but that many people had much lower valuations. Indeed, almost half of respondents (47%) were not prepared to pay anything.** [70]
- **Between the four regional theatres, visitor WTP ranges between £12.55 for the Manchester Royal Exchange Theatre, and £13.59 for the Birmingham Repertory Theatre** (as presented in Table 4.6).
- The distribution of WTP across theatres is not wide, which provides greater confidence in the homogeneity of the theatres surveyed (and is reflected in the confidence intervals in the Total column) and provides a more robust and comparable set of values for benefit transfer in the forthcoming sections.

Table 4.6 Regional theatre visitor WTP an annual tax increase (3 or5 years) to keep the theatre in the city

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Mean (std. err.)	£13.59 (£1.86)	£13.22 (£1.60)	£12.55 (£2.38)	£13.07 (£2.27)	£13.10 (£1.03)
Lower confidence interval (CI) (95%)	£9.93-£17.24	£10.08-£16.37	£7.87-£17.24	£8.58-£17.55	£11.08-£15.12
Median	£5.50	£5.50	£5.50	£7.50	£5.50
Sample size	218	207	228	194	847

- In terms of motivations for their stated WTP (Appendix Table 6.18), most respondents were willing to pay an increase in their taxes for the theatre because "the theatre is an important site of cultural interest that should be protected" at 30%, closely followed by those who supported not just the theatre but for all theatres in general at 25%. **Follow-up motivation data suggests that people's WTP is motivated in part by the importance of the theatre as a cultural site, and in part by a general 'warm glow' value for culture (as a whole). This is a common finding in the literature, and suggests that the reasons that people value cultural sites, as with any non-market good, is complex and multi-faceted**
- Among those who were not willing to pay (Appendix Table 6.19), 29% reasoned "there are more important things to think about than the theatre" and 16% said they did not believe that a tax (either council or national) would be raised to keep the theatre in the city. This raises the possibility that some interpreted the payment vehicle (local/national tax) strategically as an unreliable method to get funding to cultural institutions. This is one of the risks of a tax payment vehicle when there is limited trust in government redirection of funding.

70 We do not exclude values over £40 as although these are high, they are not considered outliers until they reach £200 at which point they are excluded.

However, there will always be a trade-off between a stronger compulsory tax and a weaker voluntary donation.

- **Splitting respondents up into local visitors and non-local visitors (refer to Table 4.7) we see that those who live closer to the theatre in question (local visitors) report a significantly lower willingness-to-pay on average (£9.89) than those who live further away (i.e. non-local visitors; £15.84).**[71] Local visitors are defined as those who live near or in the same city as the theatre or those who identified the theatre's city as the closest city to them. **This finding might reflect respondents' willingness to travel a greater distance to visit a theatre, and thereby a higher willingness-to-pay value, compared to local visitors who hold less value for their local theatres as their costs to accessing it are lower.**

Table 4.7 Local vs non-local regional theatre visitor WTP increases to annual taxes (3 or 5 years)

Theatre		Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Local visitors	Mean (std. err.)	£9.81 (£2.46)	£11.56 (£2.29)	£10.22 (£1.69)	£8.08 (£1.75)	£9.89 (£1.02)
	Lower confidence interval (CI) (95%)	£4.92-£14.71	£6.99-£16.13	£6.87-£13.56	£4.55-£11.62	£7.89-£11.89
	Median	£4.25	£5.00	£8.50	£5.50	£5.50
	Sample size	77	60	104	41	282
Non-local visitors	Mean (std. err.)	£16.25 (£2.57)	£14.07 (£2.10)	£16.49 (£5.56)	£17.08 (£3.60)	£15.84 (£1.64)
	Lower confidence interval (CI) (95%)	£11.17-21.33	£9.92-£18.23	£5.48-£27.49	£9.97-£24.18	£12.61-£19.07
	Median	£11.25	£5.50	£5.50	£11.25	£9.50
	Sample size	141	147	124	153	565

4.2.4.2 *Regional theatre community-outreach programme values (visitors and non-visitors) (one-off payment)*

Following the initial valuation, theatre visitors and non-visitors were presented information on the provision of community-outreach programmes for the follow-up valuation of outreach programmes. Prior to this community programme valuation scenario, we asked respondents their opinions on the current quality of shows and the number of workshops and community programmes provided by the theatres. Most respondents were satisfied with the quality of the theatre performances (91% overall; refer to Table 4.8). Theatre Royal Plymouth reported the highest satisfaction of performance quality (96%). The lowest satisfaction of performance quality was not far behind at 89% for Birmingham Repertory Theatre. Satisfaction for the number of workshops and community programmes ranged between 69% for Leeds Playhouse to Birmingham Repertory Theatre with 58%.

71 This difference is significant at the p<.01 level.

Table 4.8 Condition of regional theatres (self-reported by visitors)

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Is satisfied or extremely satisfied with the quality of shows	88.6%	91.8%	90.0%	95.5%
Is satisfied or extremely satisfied with the number of workshops and community programmes on offer	58.4%	69.0%	65.7%	58.9%

The survey proposed the hypothetical scenario of a cut in funding for community-outreach programmes provided by the theatre, resulting in the continued provision of the community-outreach programmes being dependent on voluntary donations. The survey asked for respondents' willingness to pay a one-off donation. Although not explicitly stated in the survey, we assume this to be a one-off payment for the life of the programme, since the survey did not provide any indication that people would have to pay this donation on a recurring basis. Given that WTP is expected to be sensitive to the payment duration, the assumption of a one-off payment over the life of the programme provides a more conservative estimate when aggregated over multiple years in present value calculations. However, we note that this could risk an underestimate of non-use value if we are unable to account for the presence of non-use value as an annual 'flow' of value from a cultural and heritage capital perspective. This may be especially the case if non-users in society are charged annually (through taxes) to fund cultural assets. This is something to be considered in more detail in ongoing research as part of the CHC framework. When asked if they were prepared in principle to pay a one-off donation to allow the theatre to continue to provide community-outreach programmes, 48% of the visitor sample responded 'Yes' or 'Maybe' compared to 60% of non-visitor respondents (see Table 4.9). This is surprising, as we would expect that visitors would value the community programmes of the theatre more highly. However, when we split the sample by local and non-local respondents (Table 4.10 and Table 4.11) we see that there is no difference between local and non-local user residents in their willingness-to-pay for community outreach programmes in principle (at 48%) but there is a slight difference between local and non-local non-user residents, with residents slightly more likely to be willing-to-pay in principle (60%) than non-residents (55.4%). However, a large portion of respondents were uncertain about their willingness-to-pay; 48% and 32% for non-user residents and non-residents respectively, compared to only 20% for both local and non-local user residents.

Table 4.9 One-off donation to fund community-outreach programmes: Willingness-to-pay in principle: Visitor and Non-Visitor samples

Gallery	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Visitor sample					
Yes	23.3%	37.3%	24.9%	25.5%	27.7%
Maybe	19.1%	15.3%	17.2%	29.6%	20.1%
No	57.6%	47.4%	57.9%	45.0%	52.3%
Non-visitor sample					
Yes	10.8%	13.9%	11.1%	14.2%	12.4%
Maybe	44.6%	39.3%	48.1%	55.3%	47.3%

No	44.6%	46.7%	40.7%	30.5%	40.2%

Table 4.10 One-off donation to fund community-outreach programmes: Willingness-to-pay in principle: User sample split by city residency

Gallery	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Resident sample					
Yes	23.3%	37.3%	24.9%	25.5%	27.7%
Maybe	19.1%	15.3%	17.2%	29.6%	20.1%
No	57.6%	47.4%	57.9%	45.0%	52.3%
Non-resident sample					
Yes	23.3%	37.3%	24.9%	25.5%	27.7%
Maybe	19.1%	15.3%	17.2%	29.6%	20.1%
No	57.6%	47.4%	57.9%	45.0%	52.3%

Table 4.11 One-off donation to fund community-outreach programmes: Willingness-to-pay in principle: Non-User sample split by city residency

Gallery	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Resident sample					
Yes	11.2%	13.7%	11.1%	14.2%	12.5%
Maybe	45.1%	40.1%	48.1%	55.3%	47.5%
No	43.8%	46.1%	40.7%	30.5%	40.0%
Non-resident sample					
Yes	25.5%	22.3%	17.0%	27.5%	23.4%
Maybe	25.2%	30.0%	40.4%	33.9%	32.0%
No	49.3%	47.8%	42.6%	38.6%	44.5%

As in the use-site scenario above, respondents are either presented with a payment card to elicit how much they value community-outreach programmes funded by the theatre (if they answered 'Yes' or 'Maybe') or are assigned a bid of £0 (if they answered 'No'). All responses were used to estimate the average and median willingness-to-pay for such programmes. These are presented in Table 4.12.

- **Across the four regional theatres, average visitor WTP to support community programmes was £13.62 as a one-off payment (assumed to be for life of programme), with a conservative lower bound value of £11.49. The median willingness-to-pay was £6.50 across all four sites. This shows that the £13.62 reflects very high valuations among some respondents, but that many people had much lower valuations. Indeed, around half of respondents among both residents and non-residents (52%) were not prepared to pay anything.**
- **Theatre non-visitor WTP to support community programmes was £4.57 as a one-off payment, with a lower bound of £3.77.**

Theatre visitors held greater values on average than non-visitors (£13.62 and £4.57 respectively). As expected, those who have visited the theatre and are more familiar with it value its services more highly, even if those services are community outreach activities that may not benefit the visitor directly.

- **Between the four regional theatres,** visitor WTP for community programmes ranged from £11.47 for Birmingham Rep to £15.22 for Theatre Royal Plymouth. The distribution of average WTP values is not wide, which leads to the lower confidence intervals reported in the Total column and provides a more robust and comparable set of values for benefit transfer in the forthcoming sections.
- **Non-visitor WTP for community programmes ranged from £4.11 for Manchester Royal Exchange Theatre to £5.41 for Leeds Playhouse.** The distribution of WTP values is again not wide, which provides a more robust and comparable set of values for benefit transfer in the forthcoming sections.

Table 4.12 Theatre individual WTP values for community-outreach programmes (visitor and non-visitor) (one-off donation)

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Visitor sample					
Mean (std. err.)	£11.47 (£1.47)	£13.66 (£1.60)	£14.26 (£2.72)	£15.22 (£2.55)	£13.62 (£1.08)
Lower confidence interval (CI) (95%)	£8.57-£14.37	£10.50-£16.81	£8.90-£19.62	£10.19-£20.26	£11.49-£15.75
Median	£6.50	£5.50	£5.50	£11.25	£6.50
Sample size	219	204	226	198	847
Non-visitor sample					
Mean (std. err.)	£4.54 (£0.97)	£5.41 (£1.18)	£4.11* (£0.55)	£4.43 (£0.66)	£4.57 (£0.41)
Lower confidence interval (CI) (95%)	£2.62-£6.46	£3.07-£7.47	£3.03-£5.19	£3.12-£5.75	£3.77-£5.37
Median	£1.25	£1.25	£0	£0	£0.63
Sample size	94	95	142	103	434

Note: Star (*) indicates that the difference in WTP value within a given city and outside of that city is significant at 95% confidence level in two-sample t-test.

In terms of reasons behind stated WTP values (Appendix Table 6.20), around half of visitors (47%) and non-visitor (53%) respondents who were willing to support community outreach programmes with a donation wanted "to make sure the theatre continues to provide community outreach programmes to the local area".

In terms of the reasons that respondents were not willing to pay (Appendix Table 6.21), the most common reason given by visitors that were not willing to make a one-off donation was that they thought that "theatre should charge for entry to community outreach programmes" at 28%. For non-visitors, among respondents who were not willing to pay, 33% "could not afford to pay to support the provision of community outreach programmes". This suggests that the community outreach programmes are valued by the broader community, and the community is willing to donate provided they can afford it, but some visitors would prefer for community outreach programmes to charge entry.

We explore other factors that may drive visitor WTP for community outreach programmes, by splitting the sample between those who have previously attended a community-outreach programme run by the theatre in the past 12 months and those who have not (Appendix Table 6.27 and Table 6.28). Although the sample size of community programme attendees is small (between 10 to 20 respondents had used free community programmes per theatre and around 50 had paid for community programmes per theatre), from this split, we see those who have attended have a much larger willingness-to-pay value on average (£22.35) than those who have not previously attended a community-outreach programme (£13.62 respectively). This difference is statistically significant (t-test). We also see respondents who have attended a programme within the last 12 months gave far fewer £0 responses (1%-9% compared to those who had not paid previously from 0%-36%). A possible explanation for these findings may be that attending the programmes reveals to respondents the value of the programmes and they are therefore more willing to pay to continue their provision.

4.2.4.3 *Regional theatre non-visitor WTP tax values (annual tax 3 or 5 years)*

In order to elicit a non-use value for a theatre, the survey proposed a hypothetical scenario which asked respondents to imagine their assigned non-use site theatre was at risk of closure due to a cut in funding and rising costs. Respondents were asked for the maximum increase in tax they were willing to pay to keep the theatre open.

When asked if they would be willing to pay in principle, 60% of respondents said 'Yes' or 'Maybe' (refer to Table 4.13). Those who said 'No' were assigned a £0 value. This is a high proportion to be willing to pay in principle, compared to previous valuation surveys in the cultural sector, which may reflect the perceived importance of theatres to the culture of a city, even among those who do not visit them. The motivations between WTP is explored further below.

Table 4.13 Regional theatre non-visitor WTP tax increase to keep theatre in city: Willingness-to-pay in principle

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Yes	11.2%	17.1%	12.4%	14.7%	13.9%
Maybe	46.5%	48.9%	42.6%	46.8%	46.4%
No	42.3%	34.0%	45.0%	38.5%	39.7%

Across the four regional theatres, non-visitor WTP to support the running of a theatre they have not visited was £5.01 on average as an annual increase in household tax over either a three- or five-year time horizon, with a lower bound of £4.32 (Table 4.14). As expected, non-visitor WTP is lower than visitor WTP to maintain the theatre (£13.10). This is consistent with the idea that people who have visited a cultural institution value it more highly. The non-use valuation scenario asked for a payment to maintain the theatre in the context of ongoing running costs compared to the use valuation scenario that asked for a payment to maintain the theatre's existence in the city.

Between the four regional theatres, non-visitor WTP ranges from £4.59 for the Birmingham Repertory Theatre to £5.55 for the Theatre Royal Plymouth. The distribution of WTP values is not wide, with no theatre having a significantly different WTP value from the others. This provides greater confidence in the homogeneity of the theatres surveyed (and is reflected in the confidence intervals in the Total column).

Table 4.14 Regional theatre non-visitor WTP annual tax increase (3 or 5 years) to keep theatre in city: WTP values

Theatre	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Mean (std. err.)	£4.59 (£0.59)	£5.15 (£0.68)	£4.66 (£0.68)	£5.55 (£0.83)	£5.01 (£0.35)
Lower confidence interval (CI) (95%)	£3.43-£5.75	£3.82-£6.49	£3.31-£6.01	£3.92-£7.18	£4.32-£5.71
Median	£1.25	£0.38	£1.25	£0.63	£0.88
Sample size	246	242	200	259	947

In terms of motivations behind positive non-visitor WTP (Appendix Table 6.22), 29% of those who were willing to pay reasoned that their willingness-to-pay was "not an expression of support for theatre but for the arts and culture in general". For those not willing to pay, 21% did not think they would ever visit the theatre (Appendix Table 6.23). **Follow-up motivations data suggests that those who appreciate arts and culture (as a whole) are willing to support sites they have not visited, compared to those support arts and culture as they believe they will visit it.**

When we split respondents by those who live near to their assigned non-use site ('local non-visitors') and those who do not ('non-local non-visitors'), local non-visitors hold greater willingness-to-pay values on average than non-local non-visitors (£5.70 and £4.45 respectively, see Table 4.15). Although this difference is not statistically significant. This is the opposite effect to that found among visitors, where non-local visitors held higher WTP on average. We speculate that proximity to the theatre facilitates a greater appreciation of the non-use value, potentially in terms of civic pride for the theatre's presence in the respective city. It may also be partly driven by an overall 'warm glow' positive value for "arts and culture in general", which is supported by the follow-up motivations detailed in the previous paragraph. This potentially highlights one of the risks of eliciting WTP values for a randomly allocated theatre that a survey respondent has never visited and may not be familiar with. That is, the survey may be eliciting a general 'warm glow' towards arts and culture in general, rather than a specific value for the non-visited institution being surveyed.[72] However, there is only so much information that can be gathered through simple follow-up motivation questions. We recommend that future research be designed to better understand the factors driving non-visitor WTP in surveys such as these.

Table 4.15 Regional theatre non-visitor: Local vs non-local WTP values (annual tax 3 or 5 years)

Theatre		Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites)
Local non-visitors	Mean (std. err.)	£5.13 (£1.20)	£5.06 (£0.90)	£5.51 (£0.93)	£6.95 (£1.54)	£5.70 (£0.59)
	Lower confidence interval (CI) (95%)	£2.75-£7.52	£3.27-£6.85	£3.67-£7.36	£3.90-£10.00	£4.54-£6.85

72 Bandara and Tisdell 2005

	Median	£1.75	£1.25	£1.25	£0.63	£1.25
	Sample size	97	96	141	103	437
Non-local non-visitors	Mean (std. err.)	£4.24 (£0.58)	£5.21 (£0.94)	£3.15 (£0.97)	£4.54 (£0.88)	£4.45 (£0.43)
	Lower confidence interval (CI) (95%)	£3.09-£5.39	£3.35-£7.07	£1.20-£5.10	£2.80-£6.28	£3.61-£5.30
	Median	£0.88	£0.00	£1.25	£0.38	£0.38
	Sample size	149	146	59	156	510

4.2.4.1 *Regional theatre WTP across scenarios*

- **Visitor WTP to maintain theatre in city was £13.10 as an annual tax (for a fixed 3- or 5-year period), with a lower bound of £11.08.**[73] This use WTP for theatres is considerably higher than the use WTP for galleries. However, we note that the theatre WTP is an annual payment over 3 or 5 years (i.e. £13.10 each year for four years on average) to maintain the existence of the theatre in the city, as compared to a per visit value to access the gallery in the previous chapter. This value is also based on some respondents having a particularly high WTP for theatres as evidenced by the median valuation being much lower.
- **Theatre Visitor WTP to support theatre Community outreach programmes was £13.62 as a one-off donation over the life of the programme, with a lower bound of £11.49.** This is high compared to the 2015 AHRC Cultural Value Project study which found that gallery visitors were willing to pay £9.59 (£10.41 in 2020 prices using UK Consumer Price Index) to support the community work of Tate Liverpool.[74] However, the community programmes in that study may be qualitatively distinct from those provided by theatres, which may account for the higher average value across this pooled sample of four theatres.
- **Theatre Non-visitor WTP to support theatre community outreach programmes was lower at £4.57 as a one-off donation for the life of programme), with a lower bound of £3.77.** We would expect that non-visitors would have lower WTP than visitors, which we see here, even though the benefits provided by community programmes are largely non-use, benefitting others in the community rather than visitors themselves. However, the high composition of local residents in the visitor sample may also account for some of the higher value that visitors assign to theatres' community programmes.
- **Non-visitor WTP to maintain a regional theatre amid ongoing running costs was £5.01 per year as an annual tax over three/five years, with a lower bound of £4.32.** This accords with our expectations that those who have previously visited and experienced the theatre would have higher WTP values than those who have never visited and aligns with both the galleries study and previous cultural value research.[75]
- By comparing across theatres sites, we see that Theatre Royal Plymouth generally had higher willingness-to-pay values across scenarios compared to other theatres, while Birmingham Rep had the highest visitor WTP to maintain the theatre in the city. Manchester Royal

73 We take a more conservative estimate of WTP based on the lower bound 95% confidence interval. This lower bound provides a representation of the lowest value that average WTP could reasonably have based on distribution of values within the sample.

74 Bakhshi et al. 2015

75 Bakhshi et al. 2015; Fujiwara et al. 2018

Exchange Theatre received the lowest willingness-to-pay values, save for community outreach programmes values from visitors, however, there was little difference in averages between sites.

Table 4.16 Regional theatre mean WTP values for each scenario

Mean WTP for each scenario	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total (average across pooled theatre sites with lower bound)
Visitor WTP to maintain theatre in city (annual tax 3 or 5 years)	£13.59	£13.22	£12.55	£13.07	£13.10 (£11.08)
Visitor WTP to support theatre Community outreach programmes (one-off donation life of programme)	£11.47	£13.66	£14.26	£15.22	£13.62 (£11.49)
Non-visitor WTP to support theatre Community outreach programmes (one-off donation life of programme)	£4.54	£5.41	£4.11	£4.43	£4.57 (£3.77)
Non-visitor WTP to maintain theatre in city (annual tax 3 or 5 years)	£4.59	£5.15	£4.66	£5.55	£5.01 (£4.32)

4.2.5 Validity testing

4.2.5.1 *Regional theatre visitor WTP tax to keep theatre in city regression*

Validity testing shows that the willingness-to-pay a tax to keep the theatre in the city was significantly and positively associated with indicators of cultural engagement. Specifically the number of visits the respondent had made to the theatre in the past 12 months (in the pooled theatre sample and three of the four individual theatre regression models, with the exception of the Manchester Royal Exchange Theatre) were significantly associated with cultural engagement (see Appendix Table 6.26). Visitor WTP was also significantly and positively associated with attitudes towards culture, such as considering that public spending on arts and culture (e.g. galleries, theatres) should be in the top 5 public spending priorities (in the Manchester Royal Exchange Theatre model only) and agreement with the statement that 'visiting theatres increases one's well-being' (happiness). Although this was found only in two of the individual theatre models (Manchester Royal Exchange Theatre and Theatre Royal Plymouth) and not the pooled model.

Demographic factors like household income and age were not significant in the pooled theatre sample, and significant for only one of the individual theatre models (Birmingham Rep in both cases). Note that income is significantly and positively associated with theatre visitor WTP in the simple regression (containing only age and income) but the significance drops out with the inclusion of indicators of cultural engagement. This indicates that cultural engagement is a stronger driver of theatre visitor WTP than income. However, the lack of significance of

income in the models does not provide a high degree of confidence that WTP is affected by income across the theatre sample as we would expect based on the theoretical literature.

Appendix Figure 6.9 shows that income within survey samples is distributed distinctly between the theatre samples, with broadly normal distribution and a long tail of higher income respondents for the Manchester visitor sample, while Birmingham has a skew towards lower ends of the income distribution, and Leeds and Plymouth have a lower representation of lower income respondents. This difference in within-sample income distribution for the different theatre samples may account for the lack of statistical significance of income in the WTP regressions, and the fact that income adjusted benefit transfer performs well for the theatre visitor samples in terms of transfer error (to pre-empt the results of Section 4.2.6.2).

Another hypothesis may be that other unobservable factors related to social class (such as a person's childhood background) are more significant drivers of WTP than income, a research strand which is explored in further detail in Appendix 6.4.3.1.

As in the galleries data, those who lived in the city of the theatre had lower WTP on average in the pooled theatre sample. Although again this appears to have been driven by a strong effect in only one of the individual theatre models (Birmingham Rep). However, it is negative in all other models, and it is possible that geography of residence is driving more of the effect than income in the pooled model, which could account for the insignificance of that variable.

Overall model fit was in line with previous benefit transfer studies for DCMS and Historic England, with the Adjusted R-squared showing that the models explain around 14% of the WTP in the pooled model, and up to 27% for the Birmingham Repertory Theatre.

4.2.5.2 *Regional theatre visitor community-outreach programme regression*

Regression analysis shows that WTP for the community outreach programmes provided by the theatre is associated with indicators of cultural engagement (Appendix Table 6.27). Those who had visited the theatre more frequently in the past 12 months (significant in the pooled and all models except Leeds Playhouse), reported higher WTP on average to support community outreach programmes provided by the theatre. Visitor WTP was also significantly and positively associated with higher levels of satisfaction with the number of Theatre Community Programmes on offer (significant in the pooled and all models except Theatre Royal Plymouth). This is to be expected given that those who feel that the theatre is providing a good set of community programmes and more likely to value the continuation of these services.

Again, demographic factors like household income and age were not significant in the pooled theatre sample. Household income was significant for two of the individual theatre models (Birmingham Repertory Theatre and Leeds Playhouse) but not in the pooled model and was negative in the Manchester Royal Exchange Theatre model. We note that income is significantly and positively associated with theatre visitor community WTP in the simple regression (containing only age and income). Income loses statistical significance with the inclusion of indicators of cultural engagement, which may indicate that cultural engagement is a stronger driver of theatre visitor WTP for community activities than income. However, the lack of significance of income in the models does not provide a high degree of confidence that WTP is affected by income across the theatre sample as one might expect. One

possible explanation for this lack of significant association between income and WTP is that the sample sizes are smaller in the community regression due to missing observations in some of the explanatory covariates, thereby reducing the power of the models. It may also be that WTP for community programmes, which have such a high non-use component, is more strongly related to attitudinal factors than to household income. However, we would still expect the relationship between income and WTP to be positive overall, so this necessarily introduces some questions around the validity of the theatre WTP results.

Overall model fit was comparable to previous benefit transfer studies for DCMS and Historic England, with the Adjusted R-squared showing that the models explain 16% of the community outreach WTP in the pooled model, ranging from 12% for the Leeds Playhouse to 24% for the Manchester Royal Exchange Theatre.

4.2.5.3 *Regional theatre non-visitor community-outreach programme regression*

Regression analysis shows that non-visitor WTP for the community outreach programmes provided by the theatre is associated with household income in the pooled model and in two of the four individual theatre models (Birmingham Rep and Manchester Royal Exchange Theatre) (see Appendix Table 6.28). This contrasts with the mixed results found on income in the visitor community WTP models. This may suggest that non-visitors are acting more within their budget constraints when stating their WTP for community programmes provided by a theatre they have never visited, compared to theatre visitors, who may be motivated by other factors more related to non-use values.

Non-visitor WTP for community programmes is also associated with indicators of cultural engagement in the pooled model, specifically prioritisation of 'Arts and culture' in their top five areas for public spending. Agreement with the statement that 'visiting theatres increases one's well-being (happiness)' was significantly associated with WTP in the pooled model.

Overall model fit was slightly lower than previous benefit transfer studies for DCMS and Historic England, with the Adjusted R-squared showing that the models explain 7% of the community outreach WTP in the pooled model, ranging from 2% for the Manchester Royal Exchange to 18% for the Birmingham Rep, though this could be based on low sample size.

4.2.5.4 *Regional theatre non-visitor WTP tax regression*

Non-visitor value for regional theatres was positively and significantly associated with age, and household income in the pooled theatre sample (Appendix Table 6.29). Household income was also significant in two of the individual theatre models (Leeds Playhouse and Birmingham Repertory Theatre), which gives greater confidence in the validity of the theatre non-visitor WTP regressions than the theatre visitor WTP models.

Non-visitors who lived in the city in which the theatre was based had significantly higher non-visitor WTP in the pooled gallery sample, which appears to have been driven by the Theatre Royal Plymouth site. This suggests that some portion of the non-visitor value is driven by elements of civic pride among local residents even if they have not visited.

4.2.6 Transfer testing

Summary of regional theatre transfer testing:

- Both simple and adjusted transfer perform well, with all transfer errors below the 40% threshold recommended in the literature. As such, simple and adjusted benefit transfer and can be used for all four theatre WTP values: Visitor WTP to maintain theatre; Visitor Community Programme WTP; Non-Visitor WTP to maintain theatre and Non-Visitor Community Programme WTP. While simple transfer performs slightly better for theatre WTP, both approaches are feasible when transferring WTP values to a theatre policy site.
- Function transfer also works well for all theatre WTP values, with acceptable levels of transfer error. Although the transfer errors are slightly higher than the simple and adjusted unit transfer, the transfer tests indicate that function transfer can be used to tailor theatre WTP values to multiple characteristics of a theatre policy site. However, we note that this requires more information than many institutions will have available on their visitor characteristics, and that the function models have relatively low explanatory power, which may be another consideration that should be taken into account.
- Overall, we recommend that theatre WTP values are robust for all forms of benefit transfer, but that in the interest of avoiding unnecessary complication and risking an increase in transfer error, that simple and adjusted transfer should be adopted.

4.2.6.1 *Simple unit benefit transfer*

Appendix Table 6.31 shows how the simple unit benefit transfer can be applied to WTP values for regional theatres, both visitor WTP value, visitor community programme WTP value, and non-visitor WTP value for maintaining the theatre and non-visitor community programme WTP value. As in the galleries transfer testing, in every column, one of the theatres is selected as a policy site and the remaining three are treated as pooled study sites. Comparing the observed mean WTPs for each policy site with the corresponding BT predictions shows how well the simple unit benefit transfer method would have worked if applied to that policy site. In particular, the greater the percentage difference between the BT prediction and the observed mean WTP at a given policy site, the greater the transfer error.

Transfer errors (TE) for theatre WTP are low across the board and all below the threshold recommended in the literature (given that any transfer of WTP values between different institutions will incur some degree of transfer error, 40% is suggested as acceptable by the academic literature).

- **Theatre visitor WTP simple unit transfer errors are extremely low,** ranging from 0.3% for Theatre Royal Plymouth to 6% for Manchester Royal Exchange Theatre. The mean difference between observed and predicted WTP was not significant in any cases. This means that simple unit transfer tests for visitor WTP to keep the theatre in the city fall very safely within what is considered to be an acceptable range in the academic literature.

- **Theatre visitor community programme WTP simple unit transfer errors** range from 0.4% for Leeds Playhouse to 25% for Birmingham Repertory Theatre. The mean difference between observed and predicted WTP was not significant in any cases, meaning that simple unit transfer tests for visitor WTP for community programmes fall safely within what is considered an acceptable range in the academic literature.
- **Theatre non-visitor community programme WTP simple unit transfer errors** range from 0.9% for Birmingham Repertory Theatre to 20% for Leeds Playhouse. The mean difference between observed and predicted WTP was not significant in any cases, meaning that simple unit transfer tests for non-visitor WTP for community programmes fall safely within what is an acceptable range in the academic literature.
- **Non-visitor WTP to maintain theatre simple unit transfer errors** range from 4% for Leeds Playhouse to 13% for Theatre Royal Plymouth. The mean difference between observed and predicted WTP was not significant in any cases, meaning that simple unit transfer tests for non-visitor WTP to keep the theatre in the city fall safely within what is considered to be an acceptable range in the academic literature.

4.2.6.2 *Adjusted unit benefit transfer*

Appendix *Table 6.32* shows that the adjusted unit transfer approach leads to a slight increase in transfer errors for theatres compared to the simple unit transfer. Transfer errors (TE) for theatre WTP for adjusted transfer tests are low across the board and all below the 40% threshold recommended in the literature.

- **Theatre visitor WTP adjusted unit transfer errors** range from 0.5% for the Theatre Royal Plymouth to 8% for Manchester Royal Exchange Theatre.
- **Theatre visitor community programme WTP adjusted unit transfer errors** range from 3% for Leeds Playhouse to 26% for Birmingham Repertory Theatre.
- **Theatre non-visitor community programme WTP adjusted unit transfer errors** range from 6% for Birmingham Repertory Theatre to 39% for Manchester Royal Exchange Theatre.
- **Non-visitor WTP to maintain theatre adjusted unit transfer errors** range from 0.6% for Leeds Playhouse to 17% for Birmingham Repertory Theatre.

- **Overall, simple unit transfer works slightly better than adjusted unit transfer for all theatre WTP values (visitor use value, visitor community programme WTP value, non-visitor community programme WTP value, and non-visitor WTP value for maintaining the theatre) with an acceptable range of transfer errors across the board and lower transfer errors overall in simple unit transfer compared to adjusted transfer tests.**

4.2.6.3 *Function benefit transfer*

Appendix Table 6.34 shows the mean predicted WTP for theatre WTP with the coefficients estimated in Appendix Table 6.33 . The regressions show that income is not significantly associated with household income or age in regressions on the visitor willingness to pay to maintain the theatre in the city. This limits the suitability of the function transfer approach for theatre visitors, since there are no statistically significant sociodemographic factors on which to adjust theatre visitor WTP, either for maintaining the theatre in the city or for community programmes provided by the theatre.

Income is, however, significantly associated with visitor community WTP, non-visitor community WTP and non-visitor theatre WTP, meaning that benefit transfer may be valid in the case of non-visitor WTP and WTP for community services among both visitors and non-visitors.

The results also indicate that visitors' theatre WTP (to keep the theatre in the city or support the theatre's community programmes) tends to be higher for those who do not live in the city, while non-visitor theatre WTP tends to be higher for those living in and around the city compared to those from further away from the city. This suggests that geographical location relative to the theatre could be valid factors for function transfer in for all three WTP values.

One note of caution is that the low explanatory power of the reduced WTP regressions for value transfer, as measured by the low adjusted R squared, means that these regressions are not successful at predicting the individual WTP values (none of them explains more than 5% of WTP variation within the relevant study sample). Therefore, although function transfer errors reported in Appendix Table 6.34 for theatre WTP are never higher than 34% and all below the 40% threshold recommended in the literature, on the basis of the accompanying evidence (low model fit and insignificance of income in the visitor WTP models) we do not recommend applying function transfer to the theatre WTP values. This raises questions about the robustness of function transfer based on these results. For this reason, we recommend that Benefit Transfer be performed using simple and adjusted transfer approaches which perform well in transfer testing and are not subject to the informational constraints and low predictive power found in the function transfer testing. It also limits the amount of variation that can be introduced in benefit transfer, as it means that it is not possible to introduce theatre characteristics into the function transfer. Consequently, WTP can only be varied by one attribute in the adjusted transfer; that of visitor or local non-user income levels. Future research should seek to explore function transfer across a large number of sites (varying by attributes such as size and type of performances) and with larger sample sizes, to provide the statistical power necessary to create function transfers that vary by site characteristics. This research is beyond the current scope of the report, given the sampling constraints, both around number of theatres and sample sizes within each theatre. For this reason, we do not report any further on the transfer errors for the four WTP values here, but refer the reader to the detailed tables in Appendix 6.4.4.3.

4.3 Application to Social Cost Benefit Analysis

We recommend that readers consult the Arts Council England Guidance Note on *"How to quantify the public benefit of your Museum using Economic Value estimates".* The principles of which also apply to transfers of theatre WTP values. You should calculate with an economist or valuation professional before applying the WTP values to your own institutions, as it may be necessary to correct and adjust the values using your own in-house data, or primary data collection through your own surveys. In such instances where the values are applied to SCBA or institutional business cases, these calculations should be informed by an economist with experience of non-market valuation and benefit transfer. Please consult Arts Council England or Simetrica-Jacobs and Nesta if you have any queries about this.

As an overarching set of best practice rules, before applying any WTP values to a theatre business case, it is important to scope the characteristics of the theatre and the valuation scenario relevant to SCBA (visitor value, community programme value, non-visitor value) against those of the sites used in this survey (see Section 6.1.1 for regional theatre characteristics in this study) to determine the comparability between sites.

4.3.1 Use value

Unlike art galleries which elicited an entry-fee payment, willingness-to-pay for theatres was elicited via an annual tax (with the payment term randomised between 3 or 5 years). This means that the 'existence value' of the theatres (i.e. remaining in the site city) is technically not a user value. Rather it is a positive spill-over in that it is a passive use value to everyone in the wider community, which represents the theatre's place-making value for their area. However, use values were only determined from a visitor sample. Typically, an existence value would be sourced from the local population of households. Our theatre use value therefore presents a biased willingness-to-pay value, as it sampled only culturally engaged visitors rather than the wider community. To accommodate this, we elicited non-use willingness-to-pay values as a proxy for non-visitors sampling. This non-user group arguably hold a lower place-making value for the theatre as they are not influenced by motivations, such as civic pride, that drive the spill-over value.

There may be situations in which use values for theatres could be used to estimate the value of a new proposed theatre. Although in principle the use values could be applied (essentially encompassing an existence value that can be aggregated to the estimated annual number of visitors to the new theatre). We urge caution based on psychological effects wherein people experience loss of an existing asset more than gain of a new one (termed the 'endowment effect')[76] some correction should be made to reduce the WTP for future visitors. The value would also be affected by the presence of existing substitute theatres in the city, with the value for a new theatre likely to be lower in a city where comparable theatres already exist. Consequently, we would not recommend transferring the full theatre visitor WTP value to SCBA for a new theatre as this would likely be an over-estimate.

4.3.2 Follow-up Community Outreach Programme value

The regional theatres survey valued the continued provision of community outreach programmes of the theatres by surveying both visitors and non-visitors for a one-off donation over the life of the programme. This represents a non-use value in both cases, on the assumption that respondents are for the most part not direct beneficiaries of the community outreach programmes but are valuing it altruistically for the social benefit it provides. Any direct value to beneficiaries would have to be estimated through a separate evaluation, with only minor risk of double counting, since the majority of visitors and non-visitors surveyed here were not beneficiaries of the community outreach activities. This scenario provides a resource for the sector, allowing non-use WTP for community programmes to be incorporated into audience surveys to estimate the total value of the theatre and the theatre's programmes to the local community.

Caution should be taken if applying this additional existence value for community outreach programmes as it is not solely a visit value (as measured by the use value). This value is an increase to the welfare of a specific set of visitors (i.e. the community programme attendees). We only recommend using this community outreach programme value in a theatre SCBA if it requires estimation of the value of outreach programmes that benefit the local community, and with appropriate professional advice.

76 Ericson and Fuster 2014

4.3.3 Non-use value

The regional theatre non-visitor WTP (as an annual tax over 3 or 5 years) provides a conservative non-use value, as it is based on both local and non-local non-users. We would expect non-local non-users to hold lower values for the theatre, since they arguably benefit less from the spill over, civic pride and place-making contribution of the theatre. This sample then serves as a proxy for non-visitors in the local area. However, our non-users are not strictly limited to the local site area as they were recruited nationally but are not representative to that of a national sample composition. A further nuance is that non-use values were elicited via a national or local tax from pure non-users (i.e. they had not visited any theatres) and impure non-users (i.e. visitors to other theatres). This probably provides a more conservative estimate of the non-use value of a regional theatre, which can be applied to a theatre to estimate the wider benefit to the local population through simple or adjusted benefit transfer.

4.3.4 Aggregation

As noted above, this report is not designed to provide guidance on how to apply WTP values into a business case or SCBA. Detailed guidance for aggregating benefit transfer values and applying them to business case evaluations is provided in the ACE Guidance Note "*How to quantify the public benefit of your Museum using Economic Value estimates*", published alongside this report.

Given that the purpose of Benefit Transfer is to transfer values from the study sites we have surveyed to a 'policy site', and that analysts will likely be expected to aggregate these values to the total sample of beneficiaries (both visitors and non-visitors), we do provide information below that may help to inform the process of aggregating individual-level WTP values up the relevant population of theatre visitors or non-visitors.

Table 4.17 summarises the process for aggregating regional theatre WTP values. For Simple Unit Transfer, the analyst simply needs to multiply by the relevant population to the business case theatre (refer to Table 4.17). For the use value, this relevant population is the total number of annual visitors to the theatre.

Community outreach programme values are additive to visitor values for the theatre, as they provide a separate value to that given for use and non-use values. The survey design was careful to explicitly value use, community outreach programmes, and non-use values for regional theatres separately. We only recommend aggregating this value to the visitor or local populations with due consideration that outreach work has not been captured elsewhere in use values in a way that could lead to double-counting. For the purposes of calculating Present Value for community outreach programmes over multiple years, the analyst must therefore assume this is a one-off payment for the life of the asset. However, this will produce very low Present Value figures over a thirty-year evaluation period, since it assumes there is no ongoing community programme value beyond first year. Given the uncertainties about how sensitive respondents are to the scope as defined in the survey, the assumption of a one-off payment over the life of the programme provides a more conservative estimate when aggregated over multiple years in present value calculations. The guidance from the literature is that WTP payment questions should have a fixed payment term, because respondents will often not think realistically about their willingness to pay over a recurring period for many years ahead. An unlimited payment term introduces a major risk of over-estimation, as it assumes that respondents would be willing to pay the same amount over a recurring period. Therefore, it can be considered more conservative practice to set a limited payment term, especially for donations to individual cultural institutions which a person has never visited, and which has a relatively low flow of welfare benefits to them and their household over time.

However, this is an area that requires additional research, especially in the light of the CHC framework. As we note throughout this report, the approach to taking a one-off non-use payment could provide too conservative an estimate of the continued flow of benefits from a 'stock' of cultural assets to those who pay for it indirectly through their taxes. We would recommend more analysis to triangulate a reasonable magnitude and payment term for non-use values over time in order to quantitatively compare this to the indirect payments that each household makes to each gallery in England through their taxes each year.

Due consideration should also be made of the separate issue of diminishing marginal returns for each additional non-use site, since this may also lead to overestimation in the aggregation process. In other words, we would expect a household to be willing to pay a lower level of donation for the tenth non-visited gallery they are asked to value compared to the first.77 Carson et al. (1998) show that if one assumes that the goods being valued are normal goods and (Hicksian) substitutes for each other, to be consistent with welfare theory, the value of a public good (like a non-visited gallery) can and should be progressively smaller as you elicit WTP for each additional site. An implication of this result is that the total non-use value of all galleries in England should be valued less than the sum of its independently valued constituent galleries. The problem should not be seen as residing with the original CV estimates, but with aggregating them without taking into account income and substitution effects. This is termed aggregation bias in the literature. These are the types of questions that must be addressed before applying non-use values on a recurring basis, and which require deeper consideration through the ongoing CHC Framework.

In this study, we recommend that non-use values should be aggregated in a conservative way to account for the specific uncertainties that exist around SP elicitation of non-use values.[78] One approach to addressing the uncertainties present in aggregating up non-use WTP would be to limit the sample of non-users to a relatively local 'catchment area'. For instance, aggregation of non-use values could be restricted to the local population. Ideally this population would be a local visitor population, as aggregation to a national level would be disproportionate to the relative importance of a regional theatre (compared to the National Theatre, London, for example) and produce unrealistically large values, which would not be credible. Note that in the CV scenario, different values were elicited over different payment durations (i.e. 3 or 5 years). This should be reflected in the aggregation process if multiple values are being combined when calculating a present value for the institution.

Table 4.17 Aggregation of Regional Theatre Willingness-to-pay values to SCBA

	Use value	Community Outreach Programme value	Community Outreach Programme value	Non-use value
WTP value	Visitor (use) WTP value	Community Outreach Programme WTP Use value	Community Outreach Programme WTP Non-Use value	Non-visitor (non-use) WTP value
Duration	Annual (3 or 5 years)	One-off (life of programme)	One-off (life of asset)	Annual (3 or 5 years)
(Multiplied by)	X	X	X	X

77 Hoehn and Randall (1989) show theoretically why adding together independently derived WTP estimates for goods is likely to overstate the value of the set of goods taken as a package: "At an intuitive level the reason is simple: each new public good the agent obtains reduces the agent's available income to spend on private goods. Further, if the public goods are substitutes for each other, then each one added to the package looks less desirable than when valued as if it were the only new addition to the stock of public goods".

78 For discussion of the issues and uncertainties around non-use WTP values, see Bandara and Tisdell 2005.

Your institution's data	Total annual visitors	Total annual visitors	Local population households (within local catchment area)	Local population households (within local visitor catchment area)

Aggregation of WTP values within an SCBA evaluation may also be able to incorporate welfare weighting, as recommended by HM Treasury Green Book (2018).[79] This permits using distributional weights to adjust for diminishing marginal utility of income in situations where there is a difference in the socioeconomic characteristics of the population in the investment area compared to the national or regional average. This can be especially useful in cases where the user or non-user group is made up of a high proportion of individuals from lower socioeconomic backgrounds, to demonstrate a higher welfare weighted WTP value, which is unconstrained by the relatively smaller household budgets of these groups.

As noted above, aggregation should always be performed with the advice of someone experienced in non-market valuation and Benefit Transfer methods.

5 Conclusion

This research was conducted on behalf of Arts Council England (ACE) to provide a standard approach in the economic valuation of art and cultural assets. The arts and cultural sector provide unique valuation challenges, being often a mixture of commercial activity and public services provision. To overcome this, contingent valuation survey designs were used to value regional art galleries and theatres across England.

While there are differences in value between cultural sites, it should be noted that direct comparisons should not be made across cultural site type. Art gallery values should not be directly compared to theatre values. This is due to the distinct scenarios that were presented between cultural goods within the surveys. For example, the art galleries survey requested willingness-to-pay value based upon **an individual entry-fee**, whereas theatres requested an increase to national or local council taxes **per household**. Furthermore, the cultural sites are arguably different; for example, theatres' core activity is only accessible at set performance times, whereas art galleries are typically accessible throughout the day. Additionally, three of the four art gallery sites had a permanent collection, meaning that this collection is permanently exhibited with only the occasional change of exhibits. Theatres, on the other hand, do not have a permanent performance, but rather present new shows with the occasion touring show returning for a revival performance.

In this report we also set out early views on how to use these values in SCBA. However, guidance on the application of non-market values to business cases is in a developmental phase and will be discussed in more detail within the DCMS Culture and Heritage Capital (CHC) framework. Before applying these values to your own business case or SCBA we recommend consulting an economist at Arts Council England, Simetrica-Jacobs, Nesta or other expert organisations.

79 H. M. Treasury 2018

Textbox 2 Summary points

- The WTP values collected in this study and tested for transfer error using a standard suite of transfer tests have been compiled into the Simetrica-Jacobs Benefit Transfer Table of Economic Values for Culture.
- The values produced in this report for regional galleries and theatres, and in previous reports for historic cities, cathedrals, and regional museums, provides pooled WTP values for all cultural sites surveyed and tested for benefit transfer as part of the DCMS and ACE funded Cultural Value Project. The Benefit Transfer Table includes the key findings from transfer testing to assist practitioners in situation where they need to apply the values in their value for money and SCBA calculations. The Benefit Transfer Table includes the key findings from transfer testing to help inform benefit transfer by practitioners, noting that in all cases we recommend seeking the advice of economists with experience of non-market valuation and benefit transfer.

In terms of the new values estimated in this report:

Regional galleries:

- Transfer tests show that:
    - For gallery visitor WTP, experimental gallery expansion WTP and gallery non-visitor WTP both simple and adjusted and function transfer perform best, with all transfer errors below the 40% threshold recommend in the literature.
    - In most cases we recommend simple and adjusted benefit transfer for the three gallery WTP values. While adjusted transfer performs slightly better for galleries WTP, both approaches are available when transferring WTP values to a gallery policy site.
    - Function transfer also has acceptable levels of transfer error, but introduces additional complexity and should only be used by experienced analysts and in situations where a large amount of institution-specific data on visitor characteristics, visitor origin, and local catchment population data are available.

Regional theatres:

- Transfer tests show that:
    - WTP to keep the theatre in the city (both visitors and non-visitors) and to support the theatre's community outreach programmes (both visitors and non-visitors), both simple and adjusted transfer perform well, with all transfer errors below the 40% threshold recommend in the literature, with simple transfer performing slightly better for theatre WTP.
    - Although the transfer errors are slightly higher than the simple and adjusted unit transfer, the transfer tests indicate that function transfer can be used to tailor theatre WTP values to multiple characteristics of a theatre policy site. However, we note that this requires more information than many institutions will have available on their visitor characteristics.

Textbox 3 Summary points continued

Regional theatres:

- Transfer tests show that (continued):
  - The function models have relatively low explanatory power. This raises questions about the robustness of function transfer based on these results and limits the amount of variation that can be introduced in benefit transfer, as it means that it is not possible to introduce gallery characteristics into the function transfer.
- This section also outlines the methodological considerations to be taken into account when using the WTP values from this study, with a table summarising the main advantages and disadvantages of the three benefit transfer methods and outlining our recommendation as to the contexts in which these benefit transfer methods work best.

It is important to note that statistical tests will (in general) be less robust at individual sites, relative to the pooled site, due to smaller sample sizes. The tests show that regional gallery WTP is driven by theoretically consistent factors such as income and indicators of engagement with culture in the pooled models (combining sites within each of the four categories). This provides good confidence in the robustness of the pooled WTP values to be used for benefit transfer. At the individual level in the case of galleries, and for both pooled and individual models in the case of theatres the findings were less robust. **This provides slightly lower confidence in the validity of the WTP results (especially for theatres).**

The above considerations, in combination with the known biases that operate on hypothetical contingent valuation surveys, means that average WTP may potentially be an over-estimate of the true value of these cultural institutions. We therefore recommend taking the more conservative lower bound WTP (the lower limit 95% confidence interval around the mean WTP) for benefit transfer in all cases, as presented in Table 5.1.

Table 5.1 ACE Regional Gallery and Theatre WTP: Key data for benefit transfer

Regional galleries Based on WTP values for Baltic Centre for Contemporary Art, Gateshead; Lady Lever Art Gallery, Liverpool; Manchester Art Gallery, Manchester; Millennium Gallery, Sheffield							
	1. Simple (unadjusted) transfer		2. Adjusted (income) transfer		3. Function transfer		
	WTP value (lower bound 95% confidence interval)	**Confidence in transfer (<40% transfer error)**	**Adjustment factors**	**Confidence in transfer (<40% transfer error)**	**Adjustment factors**	**Confidence in transfer (<40% transfer error)**	**Predictive power of function modelling (regression analysis and model fit)**

Visitor WTP entry fee to access gallery (per visit)	£5.40 (lower bound: £5.01)	Yes	Household income of visitors (average): £36,125	Yes	Income: 0.179*** Age: -0.149** Resident of use city: -0.185*** Regression constant: 0.429	Yes	Low predictive power
Visitor WTP for Expansion of gallery (randomised +10%/+20%/+30%) (one-off donation for life of asset)	£6.34 (lower bound £5.59)	Yes	Household income of visitors (average): £36,125	Yes	Income: 0.199*** Age: -0.208** Resident of use city: -0.135* Satisfied with size of gallery: 0.211** Regression constant: 0.109	Yes	Low predictive power
We do not recommend transferring the above Expansion value.							
Non-visitor WTP to support gallery (one-off donation for life of asset)	£3.72 (lower bound £3.20)	Yes	Household income of non-visitors (average): £33,563	Yes	Income: 0.181*** Age: -0.378*** Resident of non-use city: 0.092 Regression constant: 0.613	Yes	Low predictive power
Regional theatres Based on WTP values for Birmingham Repertory Theatre, Leeds Playhouse, Manchester Royal Exchange Theatre, Theatre Royal Plymouth							
	1. Simple (unadjusted) transfer		2. Adjusted (income) transfer		3. Function transfer		
	WTP value (lower bound 95% confidence interval)	**Confidence in transfer (<40% transfer error)**	**Adjustment factors**	**Confidence in transfer (<40% transfer error)**	**Adjustment factors**	**Confidence in transfer (<40% transfer error)**	**Predictive power of function modelling (regression analysis and model fit)**
Visitor WTP to maintain theatre in city (annual tax 3 or 5 years)	£13.10 (lower bound £11.08)	Yes	Household income of visitors (average): £41,348	Yes	Income: 0.083 Age: 0.212 Resident of use city: -0.338** Regression constant: 0.396	Yes	Low predictive power

Visitor WTP to support theatre Community outreach programmes (one-off donation for life of programme)	£13.62 (lower bound £11.49)	Yes	Household income of visitors (average): £41,348	Yes	Income: 0.183 Age: 0.003 Resident of use city: -0.354** Regression constant: 0.216	No	Low predictive power
Non-visitor WTP to support theatre Community outreach programmes (one-off donation for life of programme)	£4.57 (lower bound £3.77)	Yes	Household income of non-visitors (average): £27,450	At threshold of acceptability	Income: 0.351*** Age: -0.286 Regression constant: -1.385	Yes	Low predictive power
We only recommend transferring the above Community Outreach values if the SCBA requires estimation of the value of outreach programmes that benefit the local community.							
Non-visitor WTP to maintain theatre in city (annual tax 3 or 5 years)	£5.01 (lower bound £4.32)	Yes	Household income of non-visitors (average): £34,587	Yes	Income: 0.172*** Age: 0.004 Resident of non-use city: 0.161* Regression constant: -0.821	Yes	Low predictive power

The final Economic Values Database, presented in Table 5.2, collects pooled WTP values for Regional Galleries and Theatres set within the context of previous valuation estimates for cultural institutions commissioned by DCMS and ACE.[80] The table includes the key findings from transfer testing to enable practitioners to apply the cultural values more widely in their value for money and SCBA calculations, with caveats that valuation expertise should always be sought when adjusting these values to the specifics of your own institution.

Table 5.2 Simetrica-Jacobs-Nesta Benefit Transfer Table of Economic Values for Culture (with inclusion of regional galleries and theatres benefit transfer values from previous studies)

Population	Use/ Non-Use	Valuation Variable	Study site WTP (4 sites) (lower bound 95% confidence interval)	Max Transfer Error <40%	Acceptable transfer methods
Regional Museums (Department for Digital, Media, Culture & Sport 2017)					
Visitor	Use	Entry fee for access (per visit)	£6.42 (lower bound £6.01)	Yes	Simple, Adjusted, Function
Non-Visitor	Non-Use	Annual donation for conservation, maintenance & presentation of collections (recurring)	£3.48 (lower bound £3.17)	Yes	Simple
Regional galleries (Arts Council England 2020)					
Visitor	Use	Individual entry fee for access	£5.40 (lower bound £5.01)	Yes	Simple, Adjusted, Function
Non-visitor	Non-Use	One-off donation for continued support of gallery (one-off for life of asset)	£3.72 (lower bound £3.20)	Yes	Simple, Adjusted, Function
Regional theatres (Arts Council England 2020)					
Visitor	Use	Annual tax (3 or 5 years; local tax if resident, annual tax if non-resident) on behalf of household to maintain the theatre in the city	£13.10 (lower bound £11.08)	Yes	Simple, Adjusted, Function
Visitor	Use/ Non-use	One-off donation for life of programme for continued provision of the theatre's community outreach programmes	£13.62 (lower bound £11.49)	No	Simple, Adjusted
Non-visitor	Non-Use	One-off donation for life of programme for continued provision of the theatre's community outreach programmes	£4.57 (lower bound £3.77)	On threshold, treat with caution	Simple, Adjusted (with caution)
Non-visitor	Non-Use	Annual tax (3 or 5 years; local tax if resident, annual tax if non-resident) on behalf of household to maintain the theatre in the city	£5.01 (lower bound £4.32)	Yes	Simple, Adjusted, Function

80 Fujiwara et al. 2018

6 Technical Appendix

6.1 Valuation methods as applied to all case studies

6.1.1 Site selection

The same screening techniques were used across the two arts categories (regional art galleries and theatres). Potential sites were pre-screened by an ACE funding tool[81]. This allowed sites to be selected based upon their arts category, regional location, and funding mix for the 2018-2022 period. This allowed us to ensure the identification of similar sites in terms of characteristics (e.g. visitor numbers, funding per year); thereby reducing transfer error in later benefit transfer techniques. These criteria can be taken as rules of thumb when checking for the comparability between the study sites and the policy site for SCBA purposes, but they are not exclusive and other factors may be of relevance in the transfer process.

For art galleries, the selection criteria included free entry, received ACE funding, single-site (i.e. just an art gallery and not a multi-site, such as a museum and art-gallery), located outside of London. For theatres, the sites must have produced some of their own shows, received ACE funding, provided community workshops and programmes, and were located outside of London. Both art galleries and theatre sites needed to meet the criteria that sufficient visitor numbers could be collected to enable minimum 200 completed online surveys.

One of the art galleries that was considered for inclusion in the survey (Turner Contemporary, Margate) was an outlier because it is situated in a small coastal town, while the other sites are all in large, inland cities. Small coastal towns have their distinct socioeconomic and cultural characteristics, which may not map onto those of larger regional cities like Sheffield, Manchester, and Gateshead. As a result, a more homogenous set of sites was ultimately chosen. Had we included the Turner Contemporary, the WTP values elicited from this gallery could not necessarily have been reliably compared to those elicited from the other galleries. All the chosen galleries ultimately included in the survey were in the north of England (North West, Yorkshire and Humber, and North East regions). This was driven by a lack of large regional cities with galleries elsewhere that met our eligibility criteria. While this does not necessarily mean that the values cannot be applied to institutions in the south, there is a caveat that unobservable differences may exist between northern and southern sites. Nonetheless, the standard rules of benefit transfer would apply; sites should be scoped for comparability and if the demographics of the area are different then adjustments should be made (e.g. for income differentials between populations).

6.1.2 Non-visitors

Non-visitors of a site were broadly defined as not having visited that site within the past three years. The surveys were designed to identify four groups of non-visitors as outlined in Table 6.1 Non-visitor samples.

Visitors served as a non-visitor sample for sites they had not visited (i.e. 'impure non-users'). This reduced the amount of booster samples that had to be collected under both surveys. 'Pure non-users', collected through

81 The Arts Council England Funding (2018-2022) Map: https://www.artscouncil.org.uk/funding-map-2018-2022

booster data samples, had not visited any of the four sites of interest. Impure non-users are those who while a non-user for a given site had visited at least one of the other three sites. These samples were collected both from the local region, for the sites, and at a national level.

Table 6.1 Non-visitor samples

	Local	National
Visited one of other three sites in past 3 years ('impure non-users')	Not visited site in past 3 years	Not visited site in past 3 years
Not visited any of other three sites in past 3 years ('pure non-users')	Not visited site in past 3 years	Not visited site in past 3 years

We note that there may be underlying differences in the characteristics of so-called '*pure non-users'* (those who have visited one of the four sites in the past three years) and *'impure non-users'* (those who have not visited any of the four sites in the past three years). For instance, those who have not visited any of the four theatres may have lower levels of cultural engagement in general. We would expect that those who are less engaged with culture would have lower WTP for a theatre they have not visited. The exclusion of this group could lead to a higher average WTP across the survey sample. We therefore attempted to recruit a balanced sample with the inclusion of some 'pure non-users'.

Impure non-users are more culturally engaged, they have visited at least one of the four sites, than pure non-users which have not visited any of the four sites. A sample with an excess of impure non-users will be more culturally engaged and will likely have a higher WTP than the true non-user sample population. This results in an overestimation of non-use value for the gallery or theatre, due to the lower WTP of pure non-users compared to impure non-users. Impure non-users, being recruited from the users population, are also financially better off than pure non-users (see income graphs such as Appendix Figure 6.1 and Figure 6.8, and the social mobility tables in 6.5.1.2) which would also lead to the overestimation of WTP values.

The results of t-tests of statistical difference show that mean non-use WTP values did not differ significantly between the pure and impure non-visitor samples in either the galleries (p= 0.842) or theatre samples (p=0. 121).

Additional scales

All surveys included follow-up multiple choice questions determining underlying preferences that drove individual WTP values (see sections 6.3 and 6.4). Other critical questions related to the sites included the frequency of user visits; familiarity with services; satisfaction with experience; condition of site; distance decay (using first half of postcode); whether respondents previously paid for exhibitions or workshops and how much they paid. The survey also included validated scales measuring civic pride and social mobility (refer to sections 6.5.1.1 and 6.5.1.2 for more information).

6.1.3 Bias correction measures

This section provides an overview of the approaches taken to correct for various types of bias in the survey responses.

Probability weights: The composition of the survey sample may not adequately reflect the composition of the target population due to several reasons:

- self-selection bias resulting from the survey distribution method among an online panel of pre-registered respondents, where certain demographic groups may be under- or over-represented compared to the general population,
- small sample bias resulting from the 'luck of the draw' which may cause certain demographic groups to be under- or over-represented in the sample compared to the underlying population.

In particular, as the unweighted socio-demographic characteristics shows (see section 6.1.5), our sample is different in some aspects to our target population. As these characteristics may be drivers of WTP, any imbalance in our sample could result in biased value estimates. For instance, women tend to report lower WTP, so without correcting for over-representation of women in our sample we could underestimate the true valuation for preservation of arts and cultural sites. Therefore, to account for these differences in representation, throughout the analysis we apply weights based on socio-demographic characteristics taken from the national census and the Audience Agency's Audience Finder data.

Hypothetical bias occurs when the hypothetical nature of the CV survey leads to respondents overstating what they would pay in reality.[82] A range of approaches were made within the survey to address hypothetical bias. Counteractive (i.e. *ex ante*) treatments through so-called entreaties in the survey text are designed to reduce hypothetical bias and make the survey incentive compatible with standard welfare theory.[83] In the surveys, we provide respondents with cheap talk scripts[84] asking them to be realistic, reminding them of the household budgetary constraints, and the existence of other things that they may wish to spend their money on.[85] Respondents are also informed that "studies have shown that many people answering surveys such as this one, say they are willing to pay more than they would actually pay in reality".[86]

The survey also included a consequentiality script in the form of a Likert scale asking respondents "How confident are you that the results of this survey will be used by policymakers". There is a range of field studies which suggest that perceived consequentiality matters in stated preferences and that observables can help explain how this perceived consequentiality varies across people.[87]

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82 Cummings and Taylor 1999; Landry and List 2007; Mahieu et al. 2012

83 Carlsson et al. 2013; Cummings and Taylor 1999

84 Cheap talk script is a survey technique designed to reduce hypothetical bias in WTP estimates by reminding respondents of their budget constraints and availability of alternative goods, in order to make WTP values incentive compatible with standard welfare theory.

85 Cummings and Taylor 1999

86 Champ and Bishop 2001, 2001; Cummings and Taylor 1999

87 Vossler and Evans find some that controlling for consequentiality increases construct validity, with income, distance from the site and being a member of an environmental group only being significant drivers of WTP for consequential respondents, so that can improve our regressions. Needham and Hanley87 hypothesise that people with a higher

Ex-post, we also addressed hypothetical bias by exploring follow-up responses for inconsistencies and evidence of response acquiescence:

- Those who responded that they 'did not believe they would really have to pay' were excluded as this is an indicator that the valuation scenario was not answered in a realistic way.
- Those who completed the survey in an unrealistically fast time were excluded. Removal of so-called 'speedsters' is recommended practice in CV analysis.

6.1.4 Analysis

The surveys elicited willingness-to-pay values on behalf of the individual (art galleries) or the household (theatres). Sample size and population weighting ensures that survey samples are representative of the respective regional population, which means that the values can be aggregated to the local population. Values are aggregated to the local region proportionally, by taking the percentage of the sample who give a positive WTP value for the site in question and scaling up to the equivalent proportions of the local population.

6.1.5 Socio-demographics

As the Understanding Society survey does not explicitly collect information on theatre visits and galleries (exclusive to museum visits), we compared our primary data samples with Audience Finder data based on the eight sites of interest.

For our galleries data, we used the data provided by Audience Finder for each of the sites to weight by age for our visitor sample. We tested various weighting techniques to best weight our primary data for our non-visitor sample. The approach matched the UK Census 2011 data based on age and gender by region for non-users. Table 6.2 presents the differences between data sets.

Table 6.2 Comparison between Audience Finder and Primary Galleries datasets

Comparison between Audience Finder data and primary data	**Baltic Centre for Contemporary Art, Gateshead**	**Lady Lever Art Gallery, Liverpool**	**Manchester Art Gallery, Manchester**	**Millennium Gallery, Sheffield**
Audience Finder data				
Female: % (n/N)	53.9% (320/594)	61.8% (no data available)	(no data available)	53.3% (228/428)
Age group:				
16-24yrs % (n/N)	25% (148/593)	4.1% (no data available)	0% (0/949)	21.1% (91/431)
25-34yrs % (n/N)	22.8% (135/593)	6.9% (no data available)	22.9% (217/949)	16% (69/431)
35-44yrs % (n/N)	16% (95/593)	9.5% (no data available)	17.6% (167/949)	11.1% (48/431)
45-54yrs % (n/N)	10.5%	9.2%	16.5%	10%

degree of familiarity with the good will perceive the survey to be more consequential as they may already be aware of the good/service being valued and as such believe that the results will be shared with policymakers as part of the planning process.

	(62/593)	(no data available)	(157/949)	(43/431)
55-64yrs % (n/N)	14.5% (86/593)	19% (no data available)	19.3% (183/949)	17.6% (76/431)
65yrs or older % (n/N)	11.3% (67/593)	38.5% (no data available)	23.7% (225/949)	24.1% (104/431)
Primary data				
Female: % (n/N)	52.7% (118/224)	60.8% (149/245)	63.8% (234/367)	58.2% (131/225)
Age group:				
16-24yrs % (n/N)	12.0% (27/224)	9.3% (23/245)	11.7% (43/367)	17.7% (40/225)
25-34yrs % (n/N)	18.7% (42/224)	22.0% (54/245)	20.7% (76/367)	28.4% (64/225)
35-44yrs % (n/N)	16.5% (37/224)	20.8% (51/245)	22.0% (81/367)	20% (45/225)
45-54yrs % (n/N)	13.3% (30/224)	11.4% (28/245)	18.8% (69/367)	12% (27/225)
55-64yrs % (n/N)	18.7% (42/224)	18.7% (46/245)	16.8% (62/367)	10.6% (24/225)
65yrs or older % (n/N)	20.5% (46/224)	17.5% (43/245)	9.8% (36/367)	11.1% (25/225)

For the theatres data, we tested the methodology based on the galleries survey, and adjusted sampling to reflect this. Table 6.3 presents the differences between data sets.

Table 6.3 Comparison between Audience Finder and Primary Theatres datasets

Comparison between Audience Finder data and primary data	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Audience Finder data				
Female: % (n/N)	67.1% (964/1436)	(no data available)	57.4% (540/940)	71.2% (270/758)
Age group:				
16-24yrs % (n/N)	5.30% (75/1411)	6.4% (24/377)	1.3% (13/	1.1% (4/379)
25-34yrs % (n/N)	10.2% (144/1411)	17.8% (67/377)	4.4% (43/	4.0% (15/379)
35-44yrs % (n/N)	15.5% (219/1411)	23.9% (90/377)	6.9% (67/	12.4% (47/379)
45-54yrs % (n/N)	21.0% (296/1411)	22.5% (85/377)	19.4% (188/	18.5% (70/379)
55-64yrs % (n/N)	26.4% (372/1411)	14.9% (56/377)	34.1% (330/	28.5% (108/379)
65yrs or older % (n/N)	21.6% (305/1411)	14.6% (55/377)	33.8% (328/	35.6% (135/379)
Primary data				
Female: % (n/N)	55.2% (123/323)	54.8% (114/208)	52.4% (121/231)	52.7% (106/201)
Age group:				
16-24yrs % (n/N)	16.5% (37/223)	16.8% (35/208)	16.8% (39/231)	22.3% (45/201)
25-34yrs % (n/N)	36.3% (81/223)	27.8% (58/208)	29.0% (67/231)	24.8% (50/201)

35-44yrs % (n/N)	23.3% (52/223)	26.4% (55/208)	25.5% (59/231)	25.8% (52/201)
45-54yrs % (n/N)	9.8% (22/223)	16.3% (34/208)	13.8% (32/231)	10.9% (22/201)
55-64yrs % (n/N)	6.7% (15/223)	5.7% (12/208)	9.9% (23/231)	9.4% (19/201)
65yrs or older % (n/N)	7.1% (16/223)	6.7% (14/208)	4.7% (11/231)	6.4% (13/201)

6.1.6 Unreliable responses

To identify respondents whose responses might be unreliable, we included a series of follow-up questions after the payment-card question of each valuation scenario. These questions were designed to ask respondents why they indicated they would or would not be willing to pay. Respondents who put certain responses were flagged to potentially exclude them from the analysis, although these were not removed from the final sample, in line with previous research of cultural sites in England based on small sample sizes such as those we have here.[88] Respondents were dropped if they had more than 1 major flag or more than 2 minor flags. This was because their answers were deemed to be unreliable, hence including them would have reduced the robustness of our data. Some examples of criteria designed to identify potentially unreliable answers include:

- Those respondents who selected 'I don't believe that I would really have to pay' as the reason behind their WTP value, as these respondents likely gave a WTP figure without properly considering the impact this would have on their finances since they did not believe they would really have to pay (total galleries: *n* = 108; total theatres: *n* = 58),
- Those who gave a WTP that was out of the scope of the survey (i.e. 'My willingness-to-pay is not just for visiting the [site], but also an expression of my support for all the [conservation work/community programmes] that they do') as these respondents may have willingness-to-pay valuations that are inflated compared to others given that they valued more than just a visit (galleries: *n* = 570; total theatres: *n* = 371),
- Those that could not promise to answer honestly (galleries: *n* = 8; theatres: *n* = 11),
- Those responses which were not valid WTP values (i.e. overestimated WTP [>£200], would not pay in reality, or out of scope; galleries: *n* = 82; theatres: *n* = 50),
- Those who gave no valid WTP values (i.e. they did not give a WTP value in any valuation scenario they were assigned to; galleries: *n* = 27; theatres: *n* = 4),
- Those who gave a life-satisfaction score of 10 and gave a happiness score of 10 (galleries: *n* = 70; theatres: *n*= 82[89]).
- Those who said they visit the site in question daily (galleries: *n* = 12; theatres: *n* = 5).

Responses specific to the art galleries survey that were flagged included:

- Three respondents had indicated they had visited all four galleries within the past three years,

88 Bakhshi et al. 2015; Fujiwara et al. 2018; R. Lawton et al. 2018

89 While 10 is a legitimate score for a respondent to enter, we were flagging respondents to check the consistency of maximised responses (i.e. those respondents who selected the highest score each time) amongst other potential flags.

- Those who were not WTP for the expansion scenario because they did not find the gallery expansion scenario realistic (*n* = 8),
- Those who did not believe that collections should be housed off-site (*n* = 5).

Responses specific to the theatres survey that were flagged included:

- Nine respondents indicated they had visited all four theatre sites,
- Those who did not have a WTP for the use site because they did not find the tax scenario realistic (*n* = 19),
- Those who did not have a WTP for the community programmes because they did not find the scenario realistic (*n* = 4),
- Those who did not have a WTP for the non-use site because they did not find the tax scenario realistic (*n* = 13).

6.1.7 Statistical tests

Using multivariate regression analysis, we explored how our sample willingness-to-pay/accept figures are associated with theoretically consistent drivers of value in ways that accord with prior expectations and previous findings from the literature.[90] This is an important test of the validity of the results obtained. Bateman et al. provide guidelines on common variables to be included in modern applications of CV. In line with this literature, we have included the recommended range of standard socio-demographic characteristics (gender, age, children, education and income) and relevant attitudinal variables (e.g. familiarity with the sites and public spending on arts and culture). The following regression model was used as part of the validation process to test that factors that are theoretically expected to affect WTP (such as income) and other factors that are known from the literature to have an effect (such as positive attitudes towards arts and culture) are performing in the expected direction:

$$WTP_i = \alpha + \beta X_i + \varepsilon_i \qquad (1)$$

where WTP_i is the amount the individual *i* has stated they are willing to pay (mid-point), α is the deterministic factor and ε is the error term containing unobserved factors that determine willingness-to-pay. In X_i we control for the observed determinants of willingness-to-pay, and β represents the corresponding regression coefficients.[91] Regression tables are reported in sections 6.3.3 and 6.4.3.

6.2 Benefit transfer methods as applied to all case studies

The key element of the BT test is an analysis of the transfer error, i.e. the difference between the transferred value, and the value we estimate. To do this we use one of the sites in the study as a "policy site" and the other sites as the "study sites". In this section, we summarise these approaches.

90 Noonan 2003

91 Bateman et al. 2002

(i) ***Simple unit value transfer***, where a single point estimate of benefit (e.g. mean WTP) is taken from one or more study sites and applied to the new policy site under the implicit assumption that the good and the socio-economic characteristics and preferences of the population are homogeneous between the study sites and the policy site:

Equation 1

$$\widehat{WTP}_p = \overline{WTP}_s$$

where $\widehat{WTP}_p$ is the predicted (average) WTP at the policy site and $\overline{WTP}_s$ is the average WTP at the study site(s); or the

(ii) ***Adjusted unit value transfer***, where the transfer accounts and controls for differences in conditions between the policy and study sites. This method usually focuses on differences in respondents' income, which could affect WTP estimates between two sites:

Equation 2

$$\widehat{WTP}_p = \left(\frac{\bar{Y}_p}{\bar{Y}_s}\right)^e \overline{WTP}_s$$

where $\bar{Y}_p, \bar{Y}_s$ is the average household income at policy and study sites, respectively, and e is the elasticity of the marginal utility of income with respect to WTP. We assume, as per the Green Book, that this equals 1 (i.e. e = 1).[92]

6.2.1 Value Function Transfer: Transfer adjusted WTP from pooled data

(iii) Benefit function [93] representing the relationship between WTP and a number of explanatory variables. The researcher transfers the entire benefit function estimated at the study site(s) to the policy site, where it is adapted to fit the characteristics of the policy site (such as socio-economic characteristics and other measurable characteristics that systematically differ between the policy and study sites). The estimated benefit function is then used to predict the benefits for the policy site [94]:

Equation 3

$$\widehat{WTP}_{ip} = b_0 + b_1 Q_p + b_2 C_p + b_3 A_p + b_4 S_{ip}$$

where $\widehat{WTP}_{ip}$ is the predicted willingness-to-pay of individual i for policy site p; Q_p is the change in provision of the cultural good/service at site p; C_p is the characteristics of the good at site p; A_p is the availability of substitute sites for site p; and S_{ip} are the socio-economic characteristics of individual i at site p. The coefficients $b_0, \dots, b_4$ are obtained from the WTP function estimated at the study site (Equation 3 is estimated for the study sites whereby

92 Alternatively, the elasticity of the marginal utility of income could be estimated using data from the study site – this would be more in the spirit of the function transfer approach discussed below in the text.

93 Desvouges et al. 1992a; Kaul et al. 2013; Loomis 1992

94 Rosenberger and Loomis 2003

the subscripts p become subscripts s). Under this approach, more information about the site and population can be transferred and so the transfer errors are likely to be lower than the other two methods [95]. On the other hand, this approach is more data-intensive and requires availability of a range of demographic and possibly attitudinal/behavioural variables that are part of the WTP function, in each site.

Since for policy decisions, we are interested in an average WTP for a site, knowing the WTP per individual is not required. For this reason, we can average out Equation 3 across individuals:

Equation 4

$$\overline{WTP}_p = b_0 + b_1 Q_p + b_2 C_p + b_3 A_p + b_4 \bar{S}_p$$

where now $\bar{S}_p$ is a set of the average socio-economic characteristics of individuals at site p; and the remaining notation is the same as in Equation 3. Equation 4 highlights the fact that individual-level data from the policy site are not necessary to predict average WTP. Rather, information on the average characteristics of the policy site is sufficient and this may be held by the policy site itself without the need for any further primary data collection.

In our study, Equation 4 is obtained iteratively for each site. Out of the four sites in each category we select a sub-set of three sites (which become the study sites) and estimate a benefit function on pooled data from these three study sites. The omitted fourth site then becomes the policy site and characteristics from the omitted sites are plugged into Equation 4 to predict WTP at the policy site [96]. Each of the four sites in each study category has "its turn" as a policy site and so the above process is conducted four times omitting a different site each time which then becomes the policy site for that particular iteration of the study. We therefore predict WTP values for each of the four sites based on pooled benefit functions from the other three sites in each category of cultural institution (i.e. regional art gallery or regional theatre).

6.2.2 Transfer error testing

A number of transfer tests have been proposed to test the predictive power of BT. The statistical validity of benefit transfer assumes that value estimates are statistically identical across study and policy contexts. In other words, the values estimated for the pooled study sites should not be significantly different from the policy site. This difference, known as transfer error, is measured in two ways.

First, we calculate the percentage difference between the observed and the predicted WTP value. What is an acceptable transfer error and whether the transfer is still informative depends on the intended policy use of the transferred estimates, and the corresponding accuracy required.[97] Here, we compare estimates of transfer error to established ranges within the literature.[98] Ready and Navrud[99] reviewed intra and cross-country benefit transfer studies and found that the average transfer error was in the range of 20% to 40%, while individual transfers had

95 Brouwer and Spaninks 1999

96 Bateman et al. 2011

97 Brookshire and Neill 1992; Desvouges et al. 1992b

98 Mourato et al. 2014; Navrud and Ready 2007

99 Ready and Navrud 2006

errors as high as 100-200%, particularly when involving complex goods. For testing we apply a threshold of maximum 40% transfer error to all individual transfer errors.

Second, we test the statistical difference between observed and predicted WTP in each case using student's t-tests. The acceptable threshold of statistically significant transfer error is not clearly set in the benefit transfer literature. For the purposes of transfer testing in this study we deem transfer errors to be acceptable if differences in observed policy site and pooled study sites WTP values are statistically insignificant in at least three of the four cases. Given the lack of guidance from the literature, we place more weight on transfer tests which produce errors below the 40% transfer error threshold proposed by Ready and Navrud.[100]

For use values across sites and populations, we test three hypotheses for the three BT methods outlined in Equation 1-Equation 3 (described in Table 6.4).

Table 6.4 Benefit transfer tests employed

BT APPROACH	T-TEST HYPOTHESIS	
UNIT TRANSFER		
Simple	$H1: \overline{WTP}_p = \overline{WTP}_s$	
	Null hypothesis: equivalence of observed mean policy site WTP and mean pooled study site WTP.	
Adjusted	$H2: \frac{1}{a_p}\overline{WTP}_p = \frac{1}{a_s}\overline{WTP}_s$	where $a_i = (\bar{Y}_i)^e$ for $i = p, s$
	Null hypothesis: equivalence of observed mean policy site WTP and mean pooled study site WTP, adjusted for income difference between policy and study site.	
FUNCTION TRANSFER		
Function	$H3: \overline{WTP}_p = b \cdot \bar{X}_p$	
	Null hypothesis: equivalence of observed mean policy site WTP and mean predicted pooled study site WTP.	

Notes: $\overline{WTP}_p$, $\overline{WTP}_s$ = average WTP at policy (p) and study (s) sites; $\bar{Y}_p$, $\bar{Y}_s$= average household income at policy and study side respectively; $e = 1$; b = coefficients obtained from WTP function estimated at study sites; and $\bar{X}_p$ = average characteristics of the policy site. For simple and adjusted unit transfer approaches, we use the equivalent of a two-sample unpaired t-test with unequal variances for weighted data, for the function transfer approach we use a paired t-test.

Hypothesis H1 tests the equality of mean WTP values at the **policy site** and the **study site.** Alternatively, average values from multiple study sites can be used, which is our approach here.

100 Ready and Navrud 2006

Hypothesis H2 tests the equality of *adjusted* mean WTP values at the policy site and the study site (or pool of study sites), adjusting for differences in any relevant characteristics. Accounting for differences in income is the most common adjustment and is the approach we use here for use values.

Hypothesis H3 tests the transferability of a *pooled benefit function*, which is obtained after pooling the datasets from the study sites (excluding the policy case in each case) and estimating a WTP function for the pooled dataset. Specifically, H3 tests the equality of the observed mean WTP at the policy site and the predicted mean WTP for the policy site, using the estimated parameter coefficients of the pooled WTP function and the values of predictor variables observed at the policy site.

The accuracy of transfers (either unit or function transfers) is assessed by estimating the respective transfer errors, as follows:

Equation 5

$$TE = \left(\frac{\widehat{WTP_p} - \overline{WTP_p}}{\overline{WTP_p}} \right) \times 100$$

Where the $\widehat{WTP_p}$ is the predicted value for the policy site.

6.3 Regional Art Galleries

6.3.1 Literature review

We focus this literature review on contingent valuation studies of regional art galleries. We distinguish between studies that assess use value, in terms of the direct use arising through experiences of the cultural institution, and non-use values, in terms of the existence of the institution, the bequeathing of an institution for future generations, or the option value of knowing one will have the possibility of engaging with the institution in the future even if one has not used that option yet.[101]

Few studies of this kind exist that look at galleries in the UK. One study is Stevenson[102], which performed a CV study of the National Galleries of Scotland in Edinburgh. An overall consumer surplus provided by the Scottish capital's National Galleries was estimated at £3,567,703. More recently, Fillis et al.[103] measured WTP as an entry fee to the Royal Scottish Academy New Contemporaries Exhibition (RSA NCE). Based on all participants, the mean WTP value reported was £4.27 (around £5 in present day GBP), marginally higher than the actual standard adult fee of £4 charged for admission to the RSA NCE. The authors also investigated how much individuals are willing to donate to support the RSA NCE exhibition, and estimated a WTD of £12.04 (around £14 in present day GBP) for all

101 Bateman et al. 2002; Mitchell and Carson 1989; Throsby 1999

102 Stevenson 2013

103 Fillis et al. 2015

participants. Mean WTD is found to be higher (£12.23) for those responding to a loss-framed scenario compared to a general donation control group (£8.74). This finding is in line with Prospect Theory.[104]

Bakhshi et al.[105] as part of the AHRC Cultural Value Project, performed a large-scale empirical comparison of contingent and subjective wellbeing valuation in the context of the UK's cultural sector, eliciting visitor and general population willingness to pay for the use and non-use aspects of two cultural institutions: the Natural History Museum (NHM) in London and Tate Liverpool (TL) gallery through face-to-face visitor and online general population surveys. The study also applied subjective wellbeing analysis, in terms of momentary wellbeing, testing for associations between activities performed in the past hour and levels of self-reported happiness and sense of purpose. Visitor use values were estimated as £6.65 on average for the NHM (as a hypothetical entry fee) and £10.83 for TL (as an annual donation to support the work inside the gallery). These figures are of a plausible magnitude compared to prices charged for paid exhibitions in UK museums. Average visitor non-use value to support the research and conservation work of the NHM was elicited as a voluntary top up donation (mean £2.78), while visitor non-use value of the work of TL in the wider community, elicited as a donation, averaged £8.00. The online survey captured non-use and option values for the general UK population (excluding Northern Ireland) as an annual donation. In the NHM study, the online survey valued the research and conservation work of the NHM, while the TL study valued the work of TL inside and outside the gallery.

Outside of the UK, Santagata and Signorello[106] conducted a general population survey of 468 respondents to measure the non-use value of a network of cultural and historic monuments making up the Naples' museums (Napoli Musei Aperti) in Italy. The hypothetical scenario was that public funds (local taxes) would be withdrawn and substituted by a non-profit operator. Two elicitation mechanisms (single-bounded dichotomous-choice bid and open-ended questions) were tested. The authors reported mean WTP values of 17,000 lire (£8.37 present day GBP) and 30,000 lire (£14.76 present day GBP) from the open-ended and dichotomous-choice questions, respectively. They argued that the disparity between elicitation methods was unlikely to be caused by strategic bias since the incentive for understatement of the true WTP should have been modest in the case of donations. Instead, they attributed the difference to the cognitive difficulty and preference uncertainty of open-ended elicitation, making lower values more likely, and the effect of yea-saying responses to the dichotomous-choice question.

Sanz et al.[107] elicited WTP for the preservation and maintenance of the National Museum of Sculpture in Valladolid, Spain. Using the payment mechanism of an annual donation to a preservation fund, they captured use value, in the form of 1,108 on-site surveys, and non-use values through 1,014 telephone surveys with local residents. Use of a double-bounded dichotomous-choice elicitation method gave a mean direct use value WTP of between €25 and €30 (£23-28 present day GBP) under a conservative scenario, and between €33 and €40 (£30.75-37.25 present day GBP) under a more optimistic scenario. Non-use value was estimated to be approximately €27 and €36 for each of these scenarios (£25-33.50 present day GBP). The authors reported no great difference

104 Tversky and Kahneman 1991

105 Bakhshi et al. 2015

106 Santagata and Signorello 2000

107 Sanz et al. 2003

between the valuation of the direct users and non-users, and in some cases non-user values were even €2 higher than the estimate of the value to direct users.

Bedate et al.[108] measured the willingness-to-pay an annual voluntary donation for the Museo Patio Herreriano de Arte Contemporaneo Español, in the city of Valladolid, Spain, controlling for the level of certainty expressed by individuals in their responses. Using double-bounded dichotomous-choice questions, the authors found WTP was lower when certainty was higher. At a certainty level of >7, mean WTP was around €18 (£23.19 present day GBP) for museum visitors. In contrast, when all moderately certain responses were coded as uncertain (an asymmetric uncertainty model), mean WTP was much lower, estimated at €14 (18.04 present day GBP) for museum visitors.

Mazzanti[109] applied discrete choice modelling to value the Galleria Borghese in Rome. In this study, 185 gallery visitors were presented with different scenarios in terms of access time, ancillary services and entrance fee versus the status quo. A WTP value was elicited for visiting the museum as it is (status quo) and for a special conservation fund for the museum. The payment mechanism was an admission fee/special conservation fund with a payment ladder elicitation method. Mean and median WTP for the visit were 7,460 and 6,000 lira respectively (£3.66-£2.96 present day GBP). Mean and median WTP for the conservation fund were 16,990 and 16,000 lira (£8.35-£5.14 present day GBP). The admission fee was 14,000 lira (£6.88 at present day GBP). Mean WTP for temporary exhibitions and multimedia services ranged from 4,300-5,900 lira (£2.12-£2.91 present day GBP). Mean WTP ranged from 6,600-7,470 lira (£3.25-£3.68 present day GBP) for special conservation activity. There was no WTP for increased access times.

Similar to our gallery expansion scenario, we sought out literature that valued a change in size of a good. Snowball[110] calculated the non-use value for local residents for two arts festivals in South Africa, presenting the hypothetical scenario of a 25-50% reduction in the size of the festival. The total sample of 279 phone interviews were randomly assigned a single-bound dichotomous choice question followed by open-ended question. Upper bound mean WTP in Grahamstown for high income individuals was $2.28 (£1.60 present day GBP) and for low income individuals was $1 (£0.70 present day GBP). Upper bound mean WTP in Oudtshoorn for high income individuals was $2.68 (£1.88 present day GBP) and for low income individuals was $1.59 (£1.11 present day GBP). The overall WTP (upper bound) for Grahamstown was $462,000 (£323,317 present day GBP) and for Oudtshoorn $446,000 (£312,120 present day GBP) per year.

In summary, CV studies on regional galleries are most common in Spain and Italy, with no studies to date on regional art galleries in England. The majority of studies measure use values only (three applications), or non-use values only (two applications), while only two study values both use and non-use values, including the Tate Liverpool study. The majority of studies focus on donations or voluntary contributions to a fund as the CV's payment mechanism. The most common elicitation mechanism is seemingly the dichotomous-choice question, used in six studies.

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108 Bedate et al. 2009

109 Mazzanti 2003

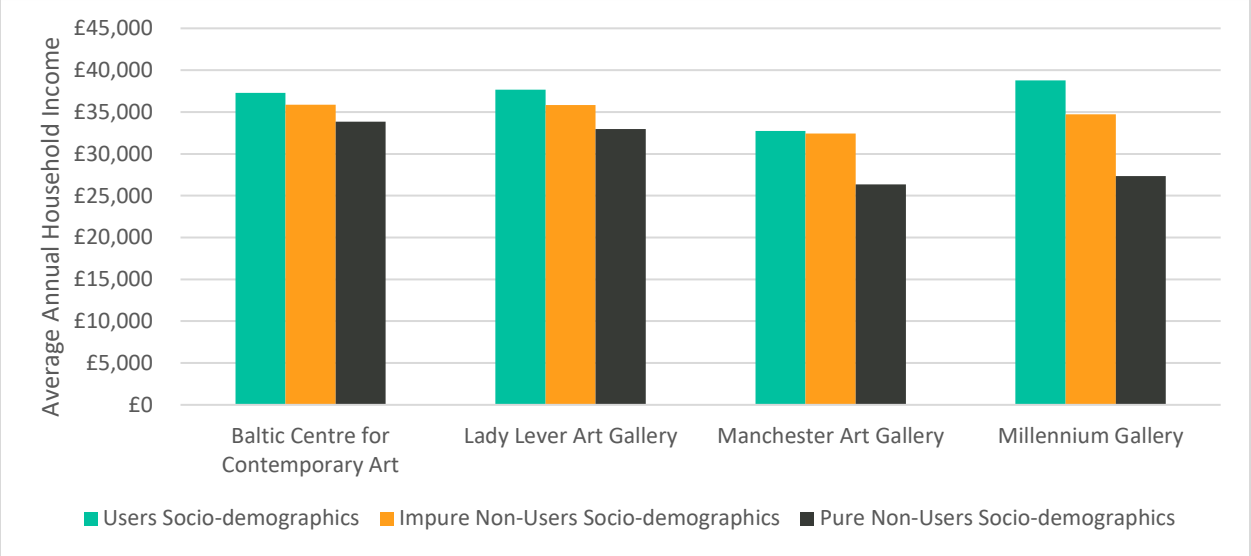
110 Snowball 2005

6.3.2 Galleries Detailed Results

6.3.2.1 *Income distribution*

As depicted in Figure 6.1, we can see that visitors to each of the four art galleries had higher annual household incomes on average than non-visitors (both pure and impure), with Millennium Gallery's visitors recording the highest average (£38,775) and Manchester Art Gallery's non-visitors recording the lowest average (£26,330).

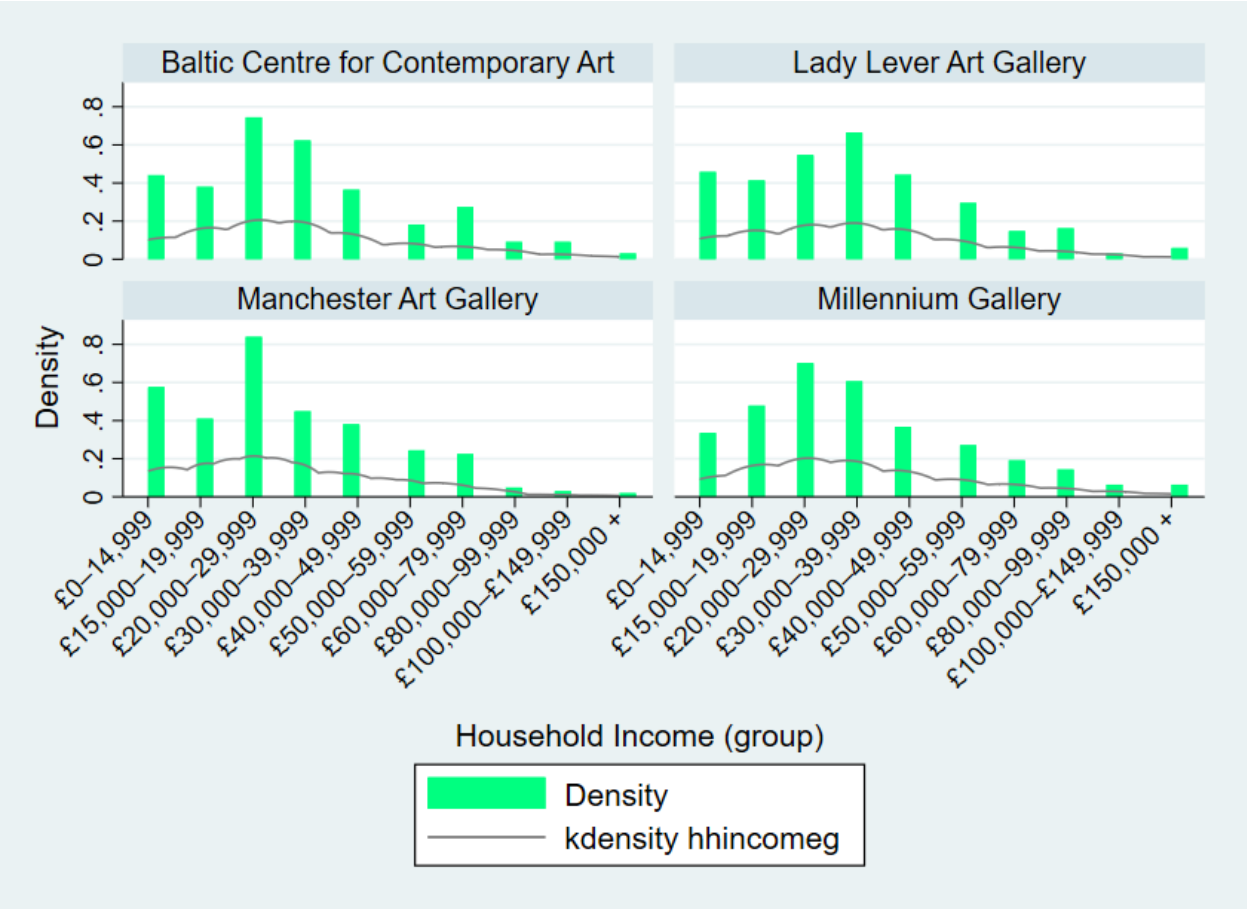
Figure 6.1 Visitor and Non-visitor (Pure and Impure) average annual household income by gallery



If we split this figure into three separate figures (Figure 6.2-Figure 6.4), we can see that visitors and impure non-visitors have a similar patterns for household income, as they are from a similar sample (i.e. visitors provided use values for sites they had visited then a non-use value for a site they had not yet visited as impure non-users). Pure non-visitors (i.e. those that had not visited any of the four galleries, see Figure 6.4) tend to show a less consistent trend with greater variation across annual household income groups.

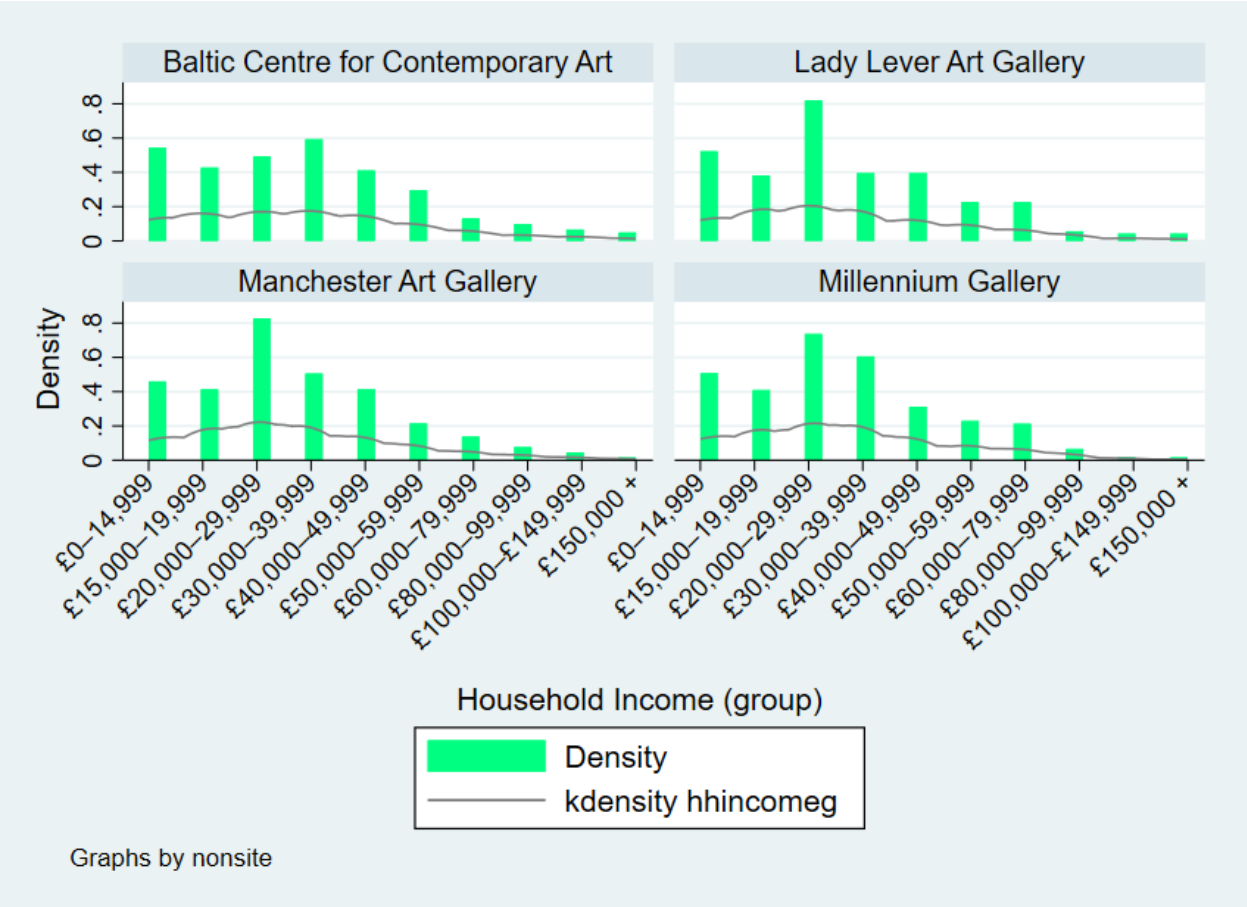
The kernel density estimates below (see kdensity line) show that income within survey samples is broadly distributed as we would expect, with a long tail of higher income respondents. Employing kernel density allows us to see the density of occurrences, in this case the occurrences of household income, over the histogram which presents the average density of each household income group. The Manchester Art Gallery visitor and non-visitor (impure) sample has a slightly higher representation of respondents at the lower end of the income scale. Similarly, the Lady Lever Art Gallery and Millennium Gallery have higher representation of respondents at the lower end of the income scale for impure non-visitors. For pure non-visitors, we see clustering towards the lower end of the income scale across the four sites.

Figure 6.2 Visitor average annual household income by gallery



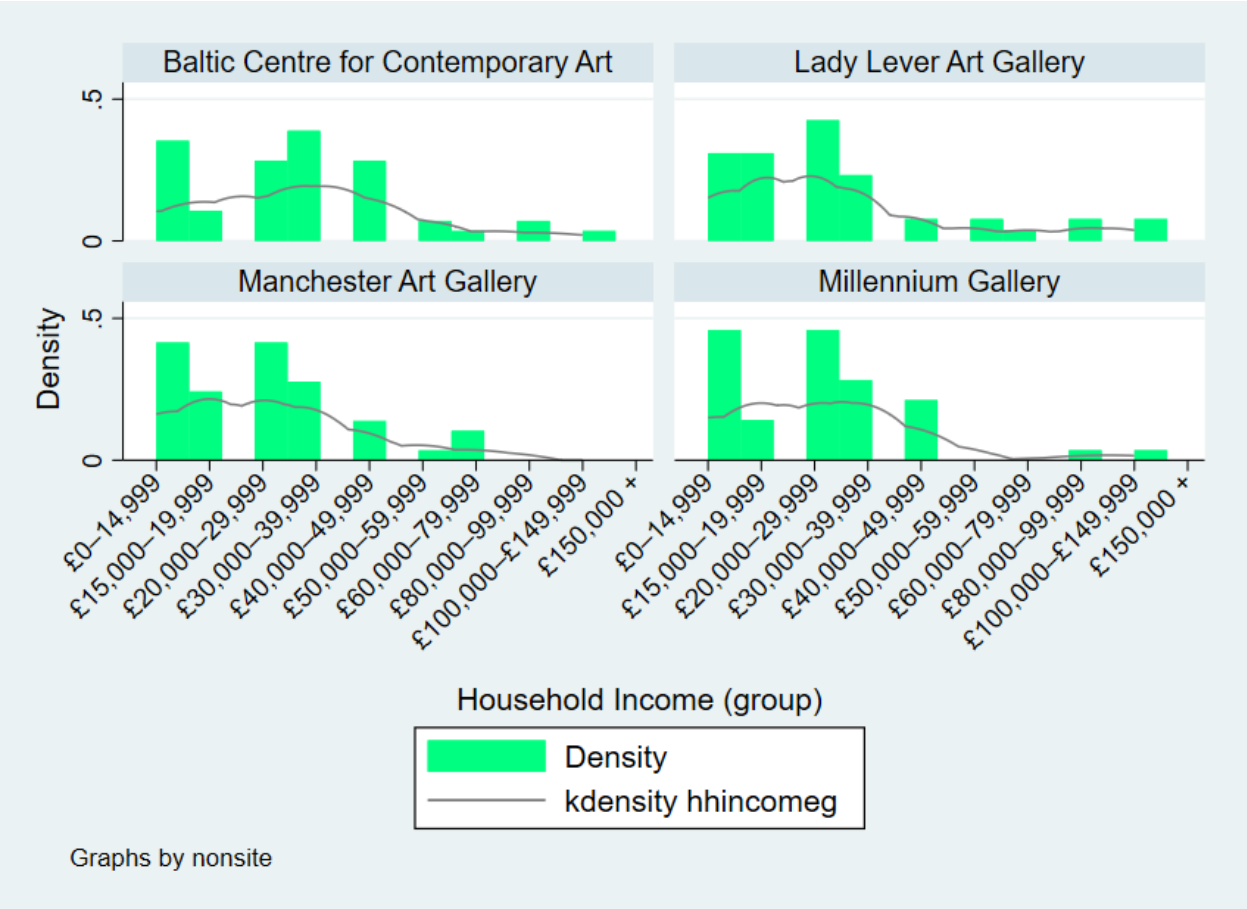
This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 948 respondents.

Figure 6.3 Non-visitor (Impure) average annual household income by gallery



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 528 respondents.

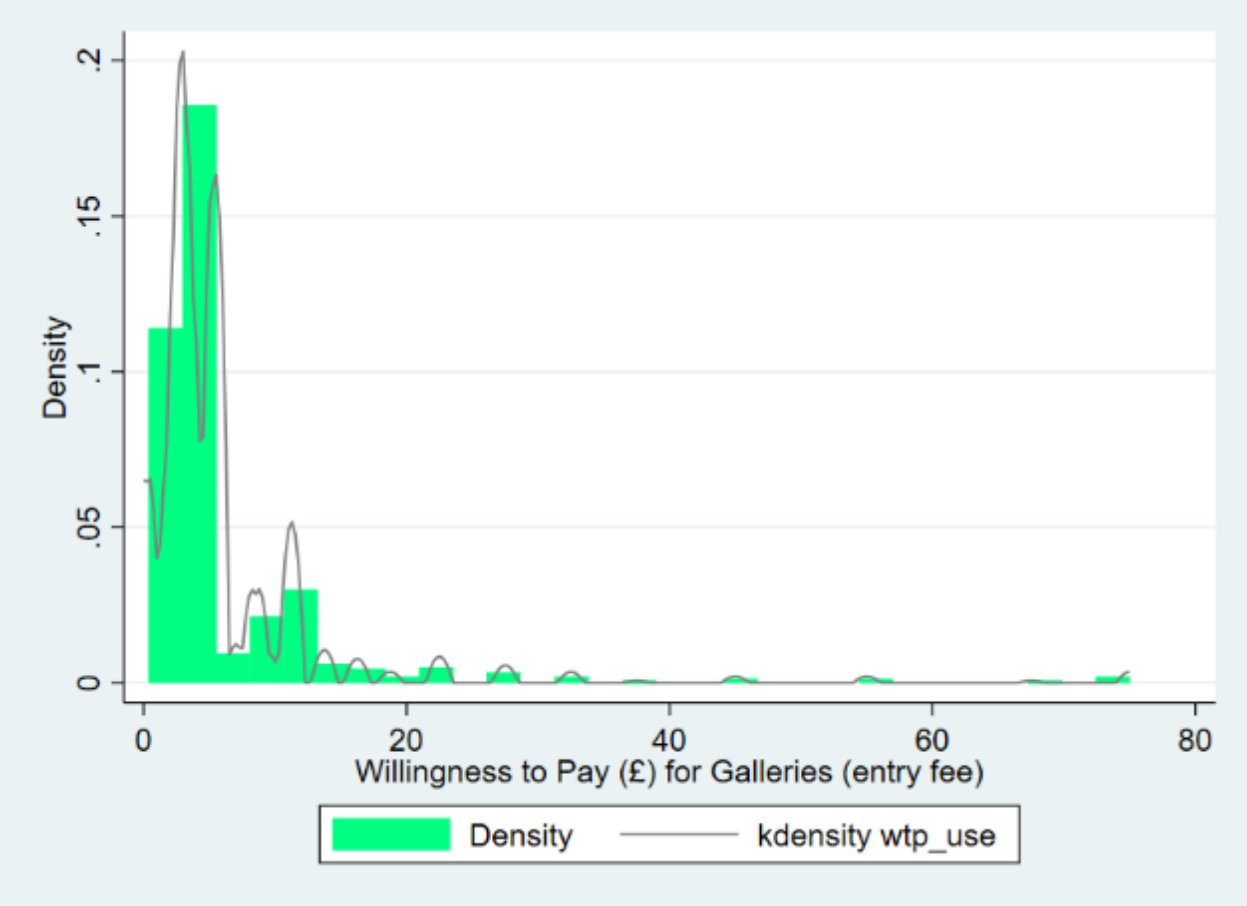
Figure 6.4 Non-visitor (Pure) average annual household income by gallery



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 85 respondents.

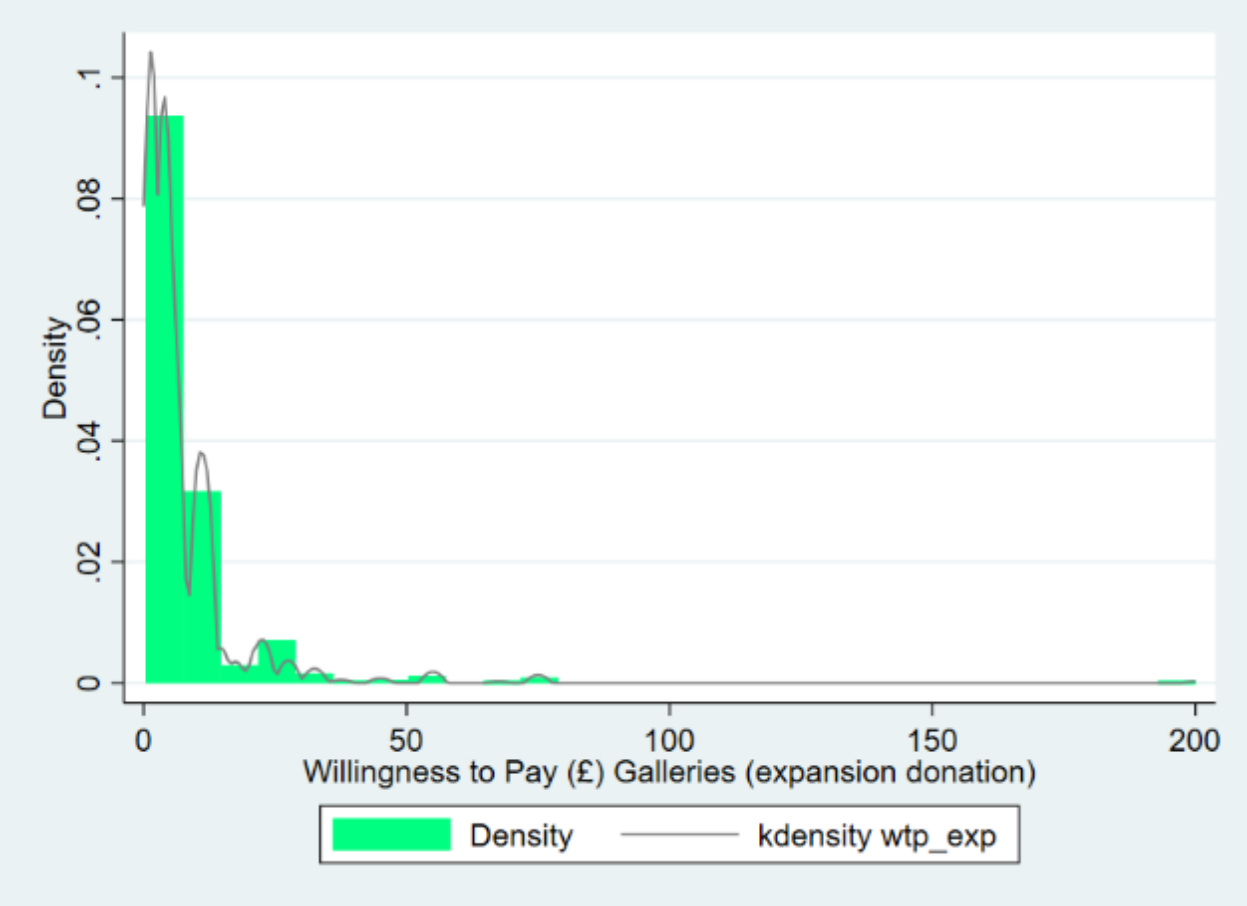
6.3.2.2 *WTP values*

Figure 6.5 Histograms and kernel density estimates: Willingness-to-pay for an entry fee



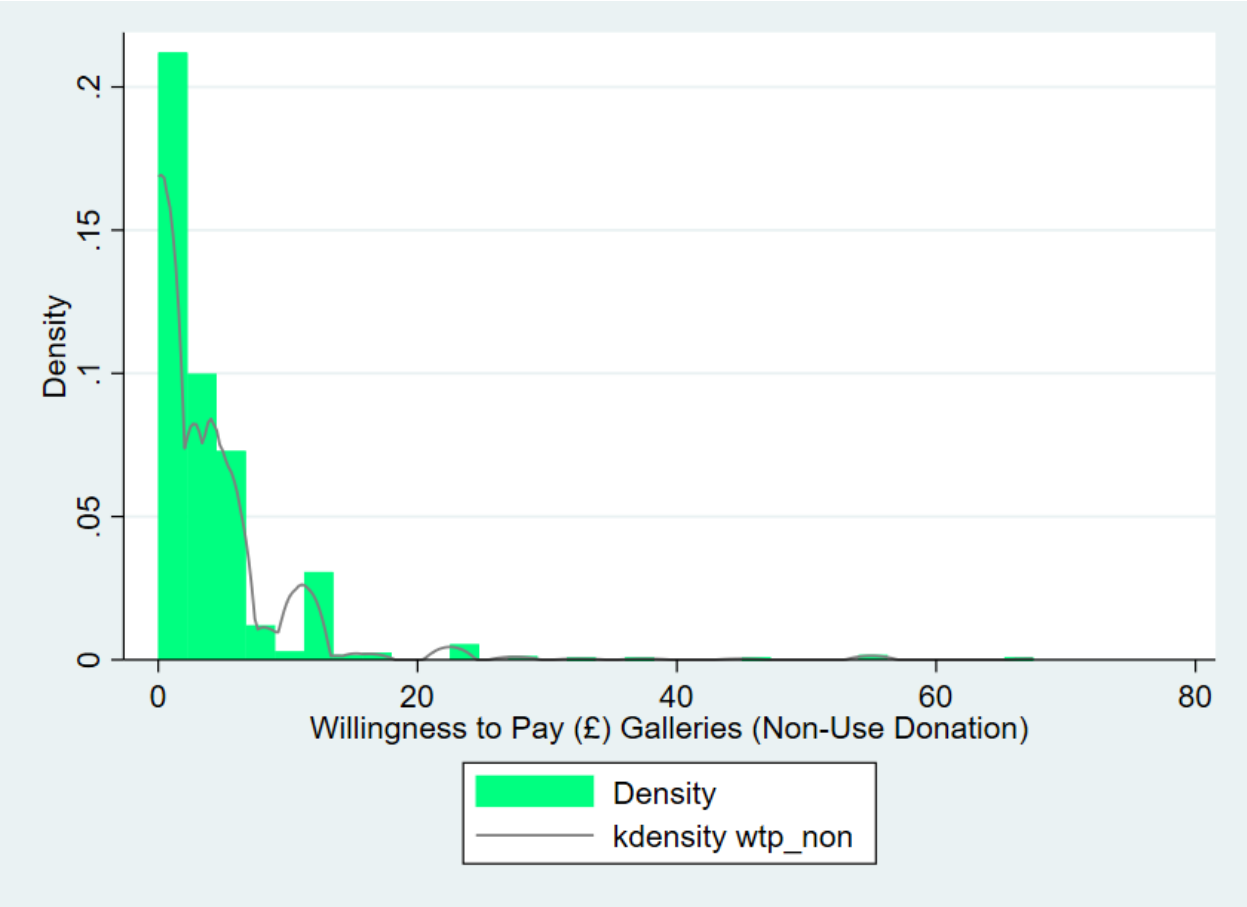
This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 91.68% of responses.

Figure 6.6 Histograms and kernel density estimates: Willingness-to-pay for an Expansion Donation



This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 77.81% of responses.

Figure 6.7 Histograms and kernel density estimates: Willingness-to-pay a Donation to a Non-Use Gallery



This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 43% of responses.

6.3.2.3 *Reasons behind Visitor WTP values*

Table 6.5 Reasons behind regional gallery visitor WTP values

WTP Categories	%
I like visiting/I enjoyed my visit to the [site]	22.6%
I think visitor enjoyment and/or the presentation of the collections could be improved if the [site] had more funds	10.5%
I may want to visit the [site] in the future	12.6%
The [site] is an important site of cultural heritage that should be protected	25.1%
I don't believe that I would really have to pay	0.0%
My willingness-to-pay is not just for visiting the [site], but also an expression of my support for all conservation and research work they do	28.5%
Other (please specify)	0.7%

Table 6.6 Reasons behind regional gallery visitor Not WTP values

WTP Categories	%
I have more important things to think about than the [site]	2.6%
I cannot afford to pay to visit the [site]	12.2%
I did not enjoy my visit much	2.1%
I only visited because it is free, I would not pay to visit	26.8%
I don't plan to ever visit again	1.2%
I think art galleries should be free for all, I don't agree with charging for admission	28.8%
I am already contributing to art galleries through my taxes	3.9%
I don't mind making a donation but I don't want to pay an entry fee	14.4%
I need more information to answer this question	4.7%
I do not feel confident stating a value that I would be willing to pay in the current uncertain climate	2.3%
Other	0.9%

6.3.2.4 *Reasons behind Expansion WTP values*

Table 6.7 presents the reasons behind why respondents were willing to pay for the expansion to galleries. The reasons behind why respondents were not willing to donate for the gallery expansion is presented in Table 6.8.

Table 6.7 Reasons behind Expansion WTP values

WTP Categories	%
I have enjoyed visiting the [site] in the past	22.1%
I would be more likely to visit an expanded the [site] in the future	13.5%
I have an interest in art and want to make sure the gallery and its collections are adequately conserved and maintained, and presented in the best possible way	20.7%
The art gallery is an important site of cultural heritage that should be expanded	19.9%
I don't believe that I would really have to pay	2.7%
My willingness-to-pay is not an expression of support for the expansion of the [site] but of my support for the arts and culture in general	19.8%
Other (please specify)	1.2%

Table 6.8 Reasons behind Expansion Not WTP values

WTP Categories	%
I have more important things to think about than the expansion of the [site]	14.7%
I cannot afford to pay to support the expansion of the [site]	30.3%
There are other art galleries I would rather support	2.1%
I don't think I'll ever visit the [site]	0.3%
I am already contributing to the [site] through my taxes	1.6%
I think the [site] should charge for entry rather than ask for donations	21.1%
I need more information to answer this question	4.4%
I do not feel confident stating a value that I would be willing to pay in the current uncertain political climate	6.0%

I already answered a question about supporting the [site] and did not want to pay another	6.4%
I do not believe that the [site] collections should be housed off site	4.1%
I do not find the expansion scenario realistic	3.8%
Other (please specify)	5.0%

6.3.2.5 *Reasons behind Non-visitor WTP values*

Table 6.9 presents the reasons behind why respondents were willing to pay for non-use galleries. The following table, Table 6.10, presents why respondents were not willing to pay for non-use galleries.

Table 6.9 Reasons behind Non-visitor WTP values

WTP Categories	%
I have enjoyed visiting the site in the past	3.6%
I may want to visit the site in the future	35.5%
I have an interest in art and want to make sure the gallery and its collections are adequately conserved and maintained, and presented in the best possible way	14.5%
The art gallery is an important site of cultural heritage that should be protected	22.7%
I don't believe that I would really have to pay	0.0%
My willingness-to-pay is not an expression of support for the site, but of my support for the arts and culture in general	23.3%
Other (please specify)	0.4%

Table 6.10 Reasons behind Non-use Not WTP values

WTP Categories	%
I have more important things to think about than the site	11.6%
I cannot afford to pay to support the work of the site	22.7%
There are other art galleries I would rather support	14.6%
I don't think I'll ever visit the site	33.8%
I am already contributing to the work of the through my taxes	1.0%
I need more information to answer this question	4.5%
I do not feel confident stating a value that I would be willing to pay in the current uncertain political climate	3.6%
I already answered a question about gallery entry fees/donations and did not want to pay another	5.3%
Other (please specify)	2.9%

6.3.3 WTP validity testing regressions

Table 6.11 Factors associated with willingness-to-pay for entry to galleries (visitor sample): Multivariate regressions

	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Pooled gallery sample
Female	-0.328	0.168	-1.052**	-0.721	-0.709*
Log age, using age midpoint	-0.077	-2.821	-0.790	-0.575	-0.643

Log of household income	1.867*	0.296	0.549*	1.947**	1.143***
With dependent children	1.615*	-0.214	1.095**	2.201	1.417***
Resident of use city	-1.741***	-1.772**	-0.724	-1.131	-1.503***
Gallery - Number of visits in past 12 months	0.470	2.074***	0.283	1.677**	1.088***
Membership - Member of a museum or gallery	1.184	2.429	1.786	7.189***	3.504***
Public spending - Arts and culture	2.138	0.359	-0.196	-1.655	0.194
Agree that Art Galleries should be preserved for future generations	-0.832	0.068	0.845	2.462**	0.447
Constant	-13.510	11.767	1.799	-16.479*	-5.139
Observations	208	218	324	201	951
Adjusted R-squared	0.116	0.162	0.064	0.217	0.149

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

Table 6.12 Factors associated with willingness-to-pay for expansion of galleries (visitor sample): Multivariate regressions

	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Pooled gallery sample
Log age, using age midpoint	0.175	-1.497	0.465	-2.701	-0.794
Log of household income	6.259*	0.910	1.091*	5.082***	3.082***
Gallery - Number of visits in past 12 months	1.063*	2.817***	0.642	1.332**	1.447***
Membership - Member of a museum or gallery	-2.303	4.612	2.422	4.917*	2.743*
Agree that Art Galleries should be preserved for future generations	0.024	-0.225	1.322	3.938***	1.269*
Expansion scenario: 10% 20% 30%	-32.756	17.904**	1.999	23.734**	3.421
Constant	-52.670*	-4.664	-9.368	-45.392**	-25.836***
Observations	206	215	318	197	936
Adjusted R-squared	0.064	0.157	0.019	0.249	0.077

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

Table 6.13 Factors associated with willingness-to-pay to support galleries (non-visitor sample, impure and pure non-visitors): Multivariate regressions

	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Pooled gallery sample
Log age, using age midpoint	-3.140	-1.653	-4.942	-0.651	-2.569**
Log of household income	-0.072	1.871*	0.367	1.084***	0.830**
With dependent children	1.282	0.321	-0.774	-0.429	0.242
Resident of non-use city	-1.657	0.312	4.688**	-1.111	1.434
Membership - Member of a museum or gallery	0.547	1.179	5.097	-1.173	1.367
Agree that Art Galleries should be preserved	3.341***	2.912***	2.312*	0.691	2.151***
Pure non-visitors	0.526	0.748	-3.140**	0.810	-0.194
Constant	13.017	-11.880	20.450	-6.506	3.507
Observations	235	261	249	235	980
Adjusted R-squared	0.080	0.057	0.106	0.014	0.051

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

6.3.4 Benefit transfer testing

6.3.4.1 *Simple unit benefit transfer*

Table 6.14 Gallery WTP transfer testing: Simple unit transfer errors (Entry fee; Expansion; Non-use)

Gallery	Entry fee				Expansion				Non-use			
	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery
Policy site: Observed mean WTP	£5.82	£5.69	£4.58	£6.01	£7.20	£6.12	£5.61	£6.79	£3.53	£3.87	£4.30	£3.33
BT prediction: Pooled mean WTP from study sites	£5.29	£5.32	£5.84	£5.24	£6.08	£6.38	£6.70	£6.19	£3.83	£3.72	£3.58	£3.90
Difference (absolute)	£0.53	£0.37	£1.26	£0.77	£1.13	£0.26	£1.09	£0.60	£0.31	£0.15	£0.72	£0.57
Transfer error	9.1%	6.5%	27.5%	12.8%	15.7%	4.2%	19.4%	8.8%	8.8%	3.9%	16.7%	17.1%
t-test: Difference significant at 5% level	No	No	Yes	No	No	No	No	No	No	No	No	No

6.3.4.2 *Adjusted unit benefit transfer*

Table 6.15 Gallery WTP transfer testing: Adjusted transfer errors (Entry fee; Expansion; Non-use)

City Income adjustment	Entry fee				Expansion				Non-use			
	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery
Policy site: Mean income	£37,663	£35,847	£32,194	£35,996	£37,663	£35,847	£32,194	£35,996	£35,269	£33,806	£32,516	£31,059
Pooled study sites: Mean income	£34,265	£34,777	£36,510	£34,763	£34,265	£34,777	£36,510	£34,763	£32,496	£32,934	£33,383	£33,840
Income ratio (Policy income / Study income)	1.1	1.0	0.9	1.0	1.1	1.0	0.9	1.0	1.1	1.0	1.0	0.9
Benefit transfer												
Policy site: Observed mean WTP	£5.82	£5.69	£4.58	£6.01	£7.20	£6.12	£5.61	£6.79	£3.53	£3.87	£4.30	£3.33
BT prediction: Pooled mean WTP from study sites, adjusted by income ratio	£5.81	£5.48	£5.15	£5.42	£6.68	£6.58	£5.90	£6.41	£4.16	£3.82	£3.49	£3.58
Difference (absolute)	£0.01	£0.21	£0.57	£0.59	£0.52	£0.45	£0.30	£0.38	£0.63	£0.05	£0.81	£0.25
Transfer error	0.1%	3.7%	12.3%	9.8%	7.3%	7.4%	5.3%	5.6%	18.0%	1.2%	18.8%	7.6%
t-test: Difference significant at 5% level	No	No	No	No	No	No	No	No	No	No	No	No

6.3.4.3 *Function benefit transfer*

Table 6.16 Gallery WTP transfer testing: *Reduced WTP regressions for value transfer* (Entry fee; Expansion; Non-use)

City	Entry fee				Expansion				Non-use			
	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery
Log of household income	0.171***	0.203***	0.201***	0.145***	0.190***	0.242***	0.272***	0.108*	0.213***	0.150***	0.206***	0.157***
Log age, using age midpoint	-0.110	-0.140**	-0.210***	-0.150**	-0.269**	-0.122	-0.328***	-0.126	-0.355***	-0.417***	-0.302***	-0.437***
Resident of use city	-0.203***	-0.132**	-0.208***	-0.193***	-0.130	-0.134*	-0.157	-0.130	0.17.3	0.031	0.005	0.129
Satisfied with size of gallery	NA	NA	NA	NA	0.237**	0.291***	0.127	0.182*	NA	NA	NA	NA
Constant	0.361	0.104	0.468	0.814*	0.416	-0.707	-0.127	0.769	0.221	1.053	0.070	1.073
Observations	755	750	636	766	739	735	627	752	751	726	738	749
Adjusted R-squared	0.051	0.058	0.081	0.055	0.036	0.046	0.059	0.013	0.040	0.035	0.035	0.039

*Note * indicates the statistical* significance of the regression coefficients at the 99% (***), 95% (**) and 90% (*) confidence levels respectively.

Table 6.17 Gallery WTP transfer testing: *Function transfer errors* (Entry fee; Expansion; Non-use)*:*

City	Entry fee				Expansion				Non-use			
	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery	Baltic Centre for Contemporary Art	Lady Lever Art Gallery	Manchester Art Gallery	Millennium Gallery
Policy site: Observed mean WTP	£5.90	£5.70	£4.71	£6.24	£7.32	£6.32	£5.61	£7.09	£3.73	£4.07	£4.30	£3.44
BT prediction: Applying value transfer function coefficients from pooled study sites to mean policy site characteristics	£5.80	£5.19	£5.33	£5.56	£7.12	£6.21	£6.28	£6.36	£3.84	£3.73	£3.62	£3.78

Difference (absolute)	£0.10	£0.51	£0.61	£0.68	£0.20	£0.12	£0.66	£0.73	£0.11	£0.34	£0.68	£0.34
Transfer error	1.7%	8.9%	13.0%	10.9%	2.7%	1.8%	11.8%	10.3%	2.9%	8.4%	15.8%	9.9%
t-test: Difference significant at 5% level	No	No	Yes	No	No	No	No	No	No	No	No	No

Note that mean WTP for each site will differ slightly to values presented earlier due to the reduced set of control variables and resulting model sample size. Regression model significant at $p<0.005$.

6.4 Regional Theatres

6.4.1 Literature review

The existence of regional theatres contributes to the cultural capital and sense of place of many towns and cities in England. This value is partially captured in the prices that attendees pay to attend plays at the theatre; however, this captures only a partial value of the theatre itself and is directly linked to the performance seen. The fact that many theatres are subsidised in addition to the ticket receipts they receive is an indicator of the wider public value of these theatres.[111] As a result of this, the actual consumer surplus that attendees obtain from visiting theatres is currently unknown. There may also be non-use values held by the local population who do not pay for tickets.

Hansen 1997 [112] asked nearly 1,850 Danes over the phone for their WTP for the Royal Theatre in Copenhagen, Denmark, to continue its current activities. This included both users and non-users (i.e. theatre goers and non-theatre goers). The author used an open-ended contingent valuation survey because they claimed the theatre is well known nationally and therefore respondents' answers do not need to be facilitated. The payment vehicle used was an individual annual-tax top-up (i.e. not a new tax, just an increase in an existing tax). They assumed foreign nationals did not value the Royal Theatre, hence tourists' WTP is assumed to not exceed the ticket price of the theatre. This payment vehicle was used as justification for excluding foreign nationals from the study. Half of the respondents were given information about how much a typical Dane pays in tax to the Royal Theatre, while the other half were told that all Danes contribute to the Royal Theatre through taxes. The latter group were asked how much they think they pay in tax after their willingness-to-pay was elicited. An average WTP of 154 DKK (about £17.70 in 2019 GBP) was found across all respondents. This included protest responses. Theatre users held an average WTP over three times greater than that of non-users. They noted a possible anchoring bias in the fact that those given current per-capita tax payment information gave WTP payments that clustered around this per-capita tax figure. Further, 18% of respondents gave a WTP of zero, which is low for an open-ended contingent valuation. Large and zero WTP estimates were seen as true WTP valuations provided the respondents' characteristics matched their answer.

As this paper values a national theatre, rather than a regional theatre, we cannot directly apply these techniques to our own valuation survey. The use of an open-ended contingent valuation may be justified for a well-known national theatre but is unlikely to be reliable for regional theatres. Furthermore, this paper does not make any attempt to deal with the fact that the WTP for those who already pay to attend the theatre is a partial consumer surplus value, which was incorporated into Wiśniewska and Czajkowski's (2019) valuation of theatres.

Wiśniewska and Czajkowski[113] elicited the WTP of 1,700 residents of Warsaw, Poland, to switch from an average theatre-ticket price of 42 PLN (about £8.40 in 2019 GBP) to a flat rate of 5 PLN (about £1 in 2019 GBP) in exchange for a yearly additional local tax using a Discrete Choice Experiment (DCE). A total of twelve choice tasks were given

111 Approximately 4% of theatre costs are covered through public funding, while box office receipts typically cover more than 50% of cost. This means that there is a consumer surplus over and above the tickets that visitors pay, that may be captured through stated preference surveys.

112 Hansen 1997

113 Wiśniewska and Czajkowski 2019

to each respondent. Each choice task presented respondents with the status-quo option (i.e. sticking to an average theatre-ticket price of 42 PLN) and the above scenario (i.e. switching to a flat-rate price of 5 PLN). The latter varied by the number of theatres in the scheme and the level of tax (five levels ranging from 0 PLN to 100 PLN). The authors found that the average WTP ranged from 10 PLN to 36 PLN, dependent on the type of theatre (around £2 to £7.20 in 2019 GBP). This study further shows that local taxes present the best payment vehicles for theatres.

Kubíčková (2012) asked 121 residents of Tábor, Czech Republic, using a mix of face-to-face and online surveys, their WTP to conserve the Oskar Nedbal Theatre through a public subsidy. This included both users of the theatre (defined as having attended at least once in the last year) and non-users. They assumed citizens in the rest of the Czech Republic had a WTP of zero. They used an open-ended CV because they claimed the theatre is well known to residents of Tábor. The authors found users had a monthly WTP over double that of non-users: CZK 74.02 vs CZK 35.27 (about £2.50 and £1.20 in 2019 GBP, respectively). This excluded extreme answers and answers deemed to be protest responses; 16.7% of respondents gave a WTP of zero, which is low for an open-ended contingent valuation. To determine protest answers, the authors included a question asking for the reason behind their stated value, as well as matching respondents' answers to their socio-demographic characteristics to check if their stated WTP was plausible. Overall, this regional (Tábor, the town has around 35,000 residents) theatre valuation has shown that the use of a public subsidy can be realistic if it is provided by the local council. Given that an increase in local tax is essentially equivalent to a subsidy to the theatre, and that respondents will have more experience with local taxes, an increase in local tax can be seen as a more realistic payment vehicle to use.

Armbrecht[114] (2014) asked 583 concert goers, primarily in an online survey, for their maximum WTP for the experience of a performance at the Vara Concert Hall. The concert hall, located in rural Sweden, records around 35,000 visitors annually. The authors chose the respondents based on every third person that passed through the concert hall's doors (i.e. only users were surveyed). Residents and non-residents of the same municipality were included. An open-ended CV was employed as the respondents, being users, were all familiar with the concert hall in question. The payment vehicle used was the entrance fee (the average entrance fee was €15). The respondents were asked two questions. The first question told respondents to disregard what they paid for their ticket and asked them to state their maximum WTP for the performance to still think they got value for money, which provided a direct use value. The second question explicitly told respondents to disregard what they paid for *the trip* to the concert hall (all travel costs incurred) which, together with the direct use value, provided a total use value. A small, but unreported, proportion of respondents gave a WTP of zero. The author says this is unsurprising since most visitors paid for their experiences, hence had a WTP of at least the value of the ticket price. Direct use values were reported to be €43.10 and €38 for residents and non-residents respectively (around £37 and £32.70 in 2019 GBP, respectively). Total use value was found to be €58.80 and €56.40 for residents and non-residents respectively (around £50.50 and £48.50 in 2019 GBP, respectively). These excluded three extreme valuations that were greater than €1,000. Overall, the rural location of the concert hall, as well as the relatively few visitors, means this can be classed as a regional concert hall, which is similar to our study sites. However, this study only included users of the concert hall, thereby ignoring non-use values held by non-users.

114 Armbrecht 2014

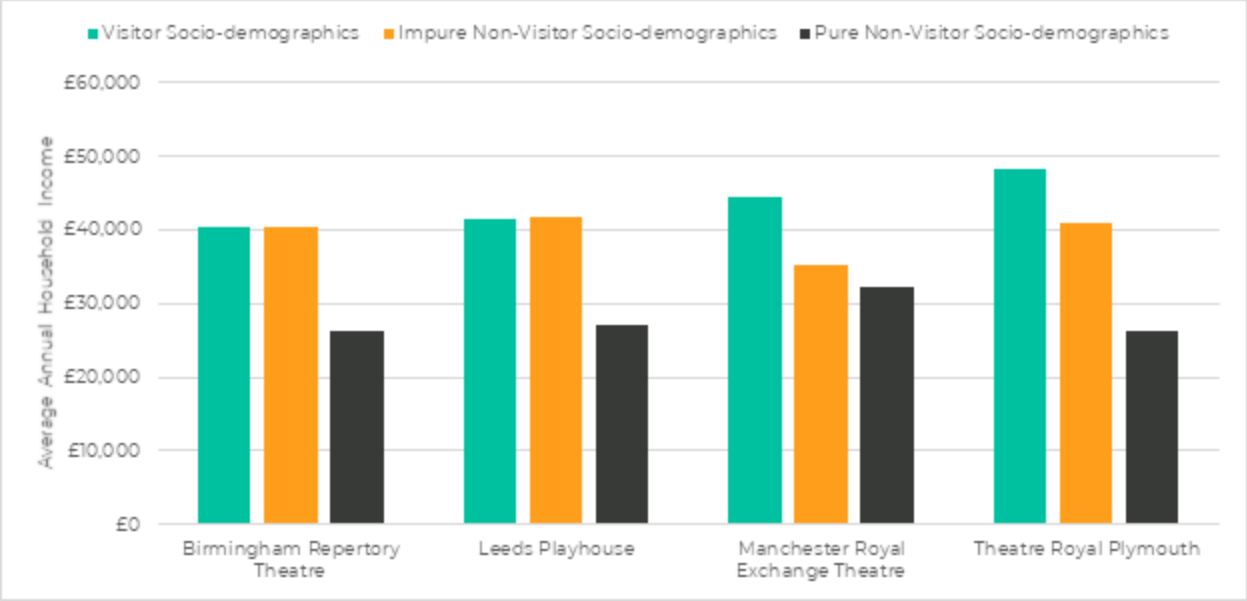
In summary, there are limited studies that have used a contingent valuation methodology to value theatres, and none have valued regional theatres. The most promising papers are those by Hansen (1997), which values a Danish national theatre, and Armbrecht (2014), which values a regional concert hall. Both papers have different methodologies, and both are not directly comparable to our study: the former values a well-known national theatre, while the latter only estimates users' WTP. However, from all four papers above, we can say that users tend to have a WTP that is two or three times larger than non-users. This seems to be independent of whether they receive information about current per-capita tax payments to the theatre. There is also no consistent payment vehicle and an open-ended CV is most often used because the good in question is well known to respondents, which is unlikely to be the case in our survey.

6.4.2 Theatres Detailed Results

6.4.2.1 *Income distribution*

As depicted in Figure 6.8, we can see that visitors and non-visitors (impure) had similar annual household incomes on average. Theatre Royal Plymouth reported the highest annual household income on average for visitors (£48,426), with Birmingham Repertory Theatre reporting the lowest annual household income on average for pure non-visitors (£26,203).

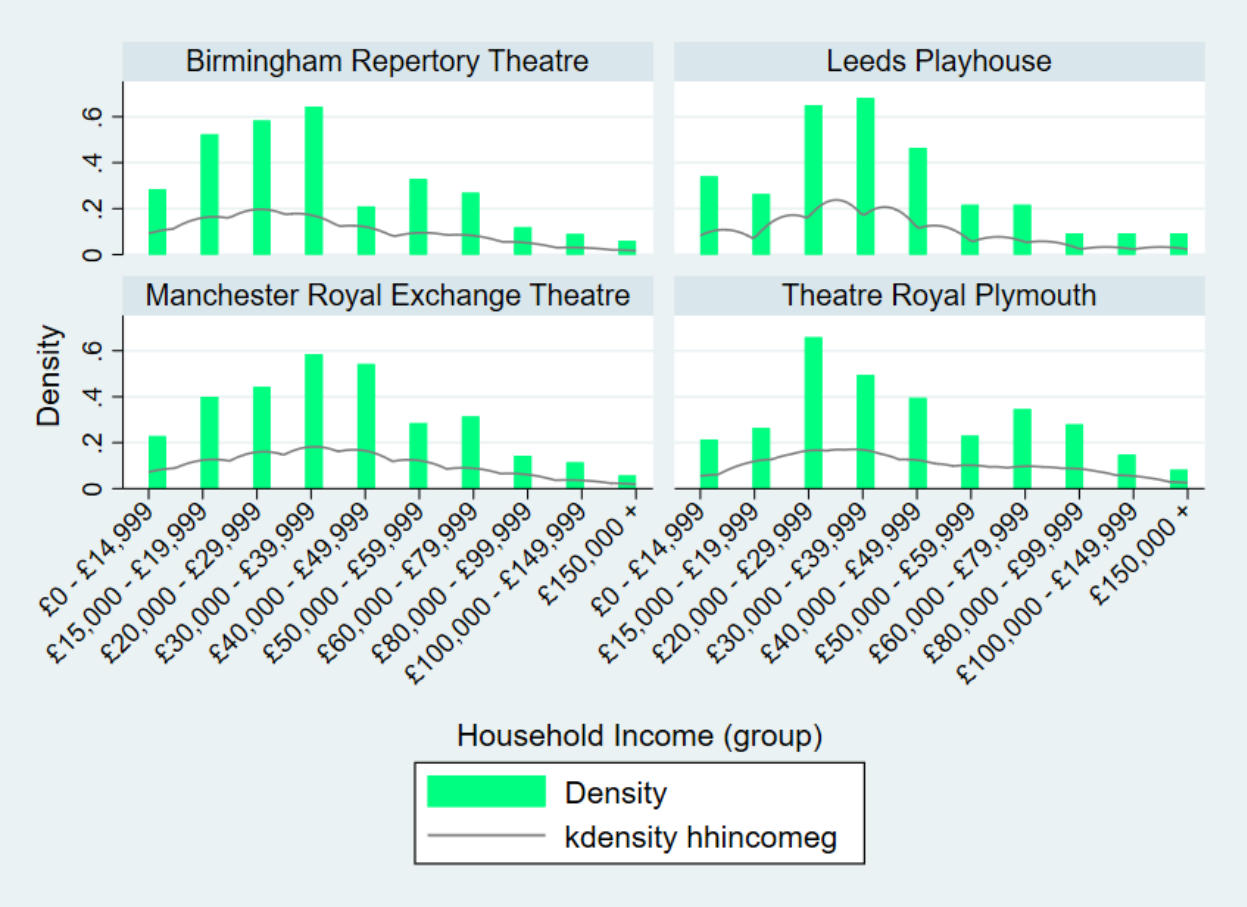
Figure 6.8 Visitor and Non-Visitors (Pure and Impure) average annual household income by theatre



If we split this figure into three separate figures (Figure 6.9-Figure 6.11), we can see that visitors and impure non-visitors have a similar patterns for household income, as they are from a similar sample (i.e. visitors provided use values for sites they had visited then a non-use value for a site they had not yet visited). Pure non-visitors (i.e. those that had not visited any of the four theatres, see Figure 6.11) tend to show clustering towards lower average annual household income groups.

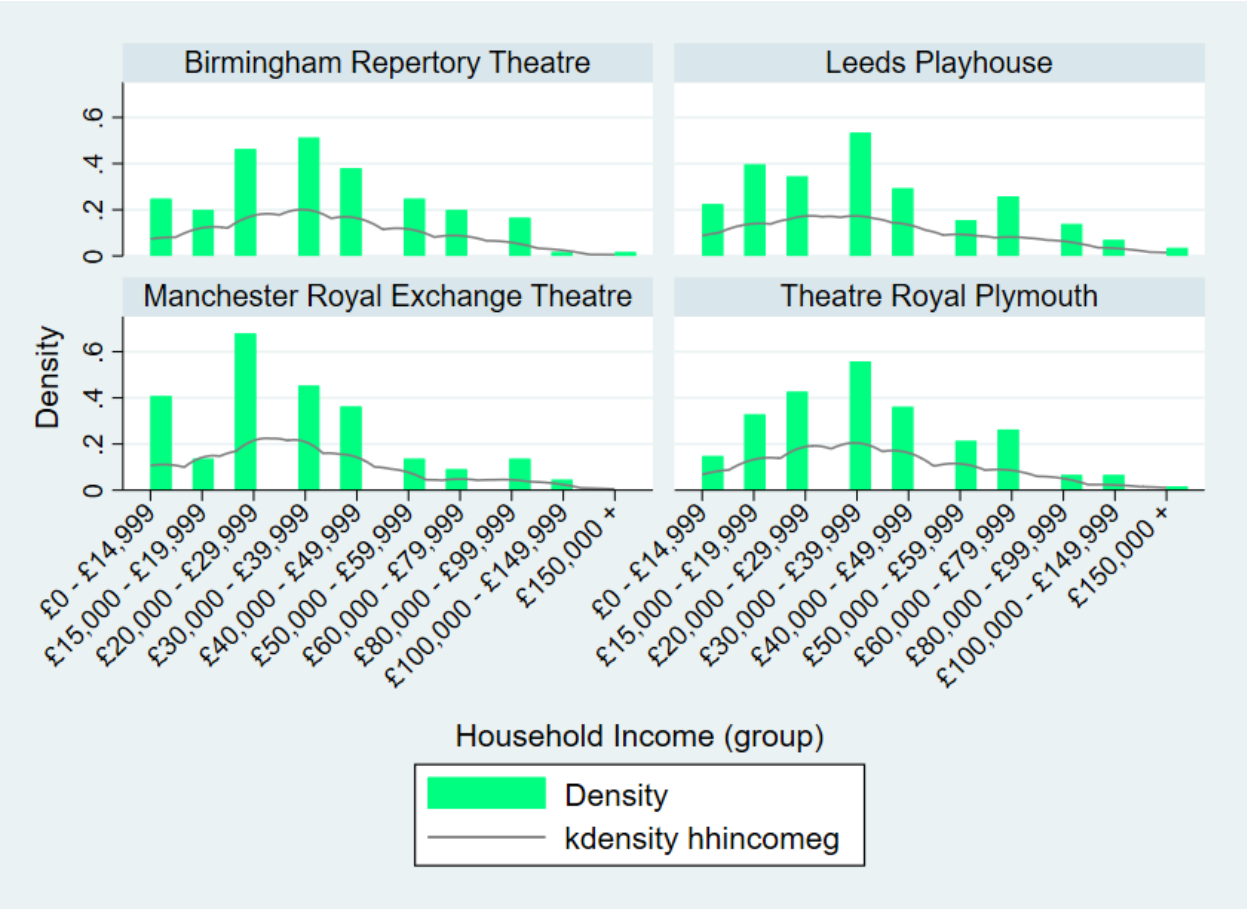
Employing kernel density allows us to see the density of occurrences, in this case the occurrences of household income, over the histogram which presents the average density of each household income group. The kernel density estimates below (see kdensity line) show that income within survey samples is distributed distinctly between the theatre samples, with broadly normal distribution and a long tail of higher income respondents for the Manchester Royal Exchange Theatre visitor sample, while Birmingham Repertory Theatre has a skew towards lower ends of the income distribution, while Leeds Playhouse and Theatre Royal Plymouth have a lower representation of lower income respondents. This difference in within-sample income distribution for the different theatre samples may account for the lack of statistical significance of income in the WTP regressions, and the fact that income adjusted benefit transfer performs well for the theatre visitor samples in terms of transfer error.

Figure 6.9 Visitor average annual household income by theatre



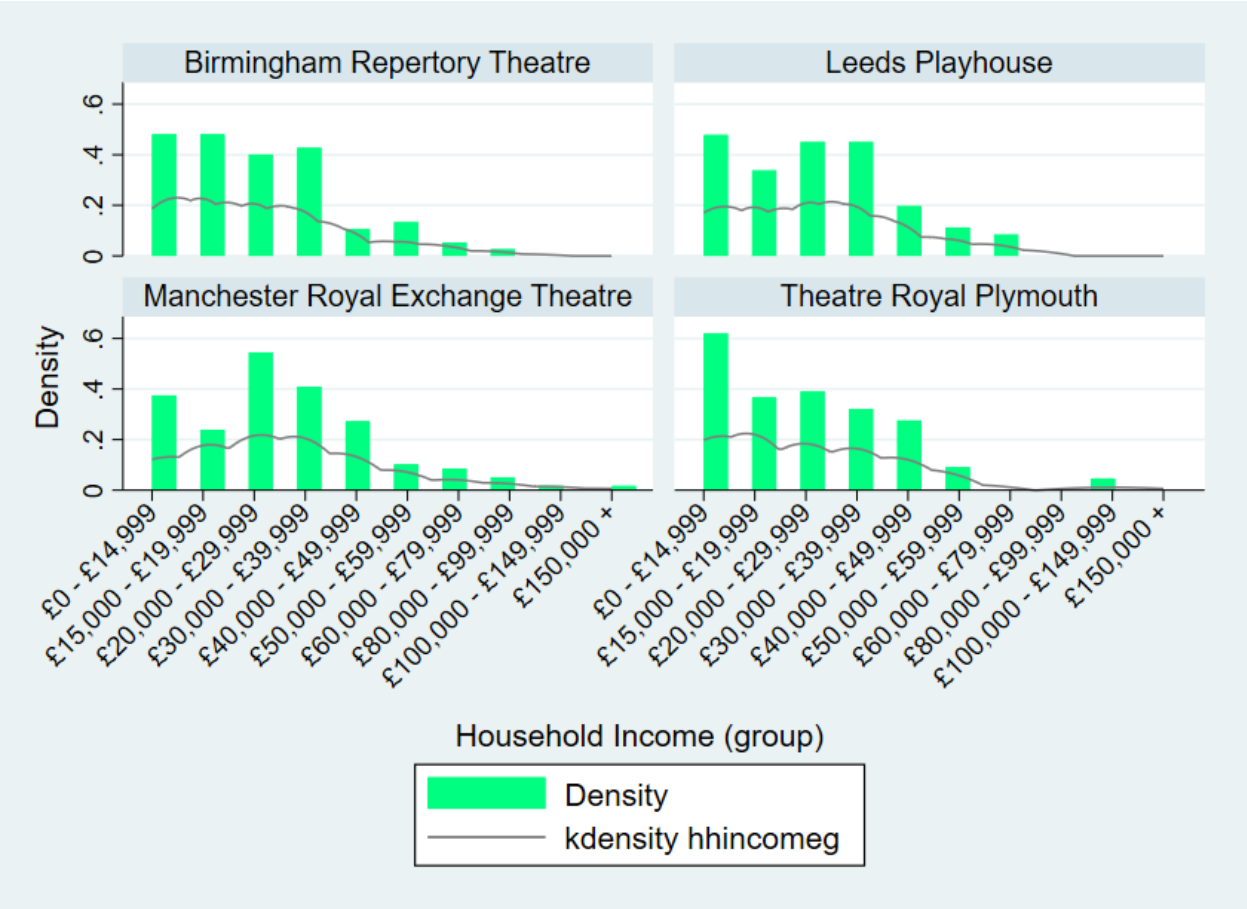
This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 816 respondents.

Figure 6.10 Non-Visitors (Impure) average annual household income by theatre



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 493 respondents.

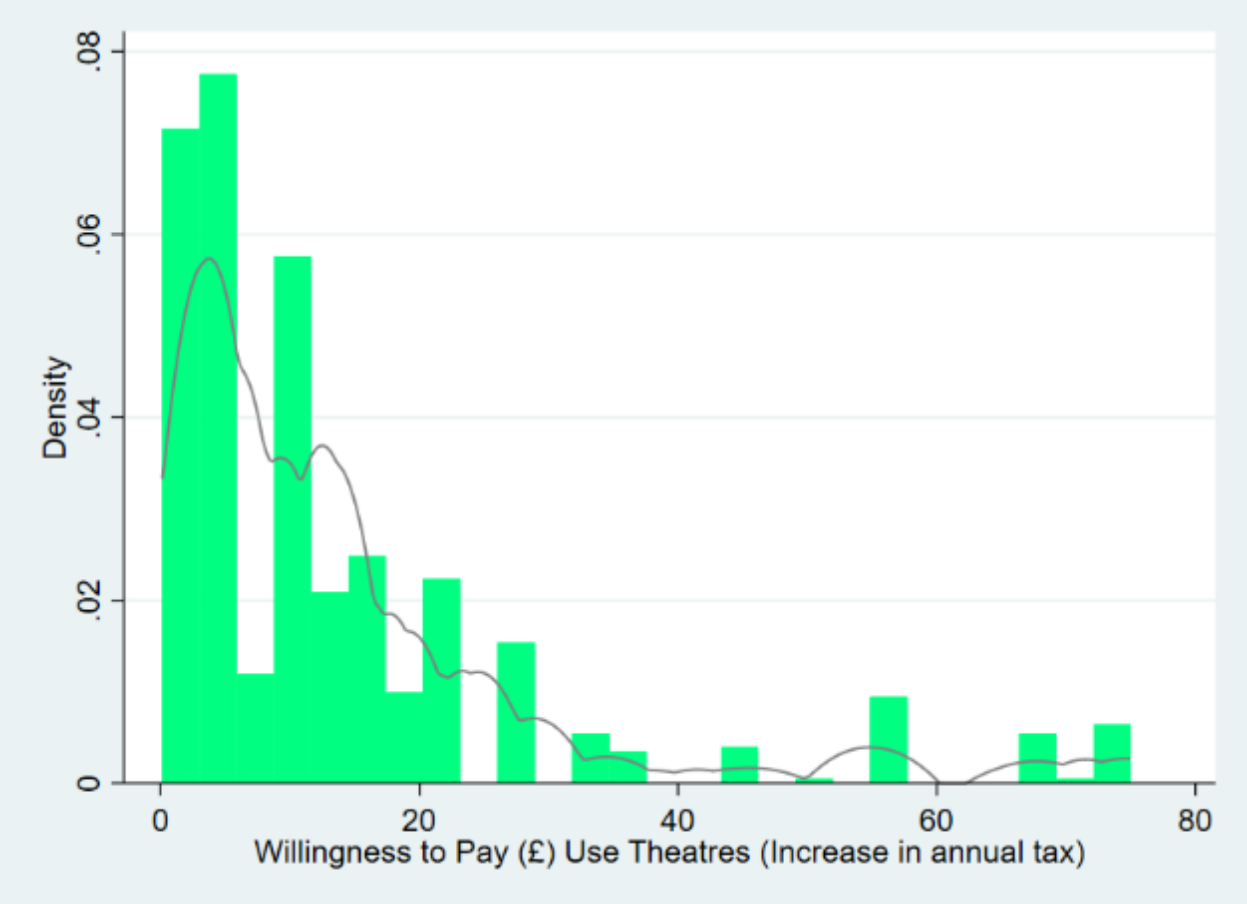
Figure 6.11 Non-Visitors (Pure) average annual household income by theatre



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 370 respondents.

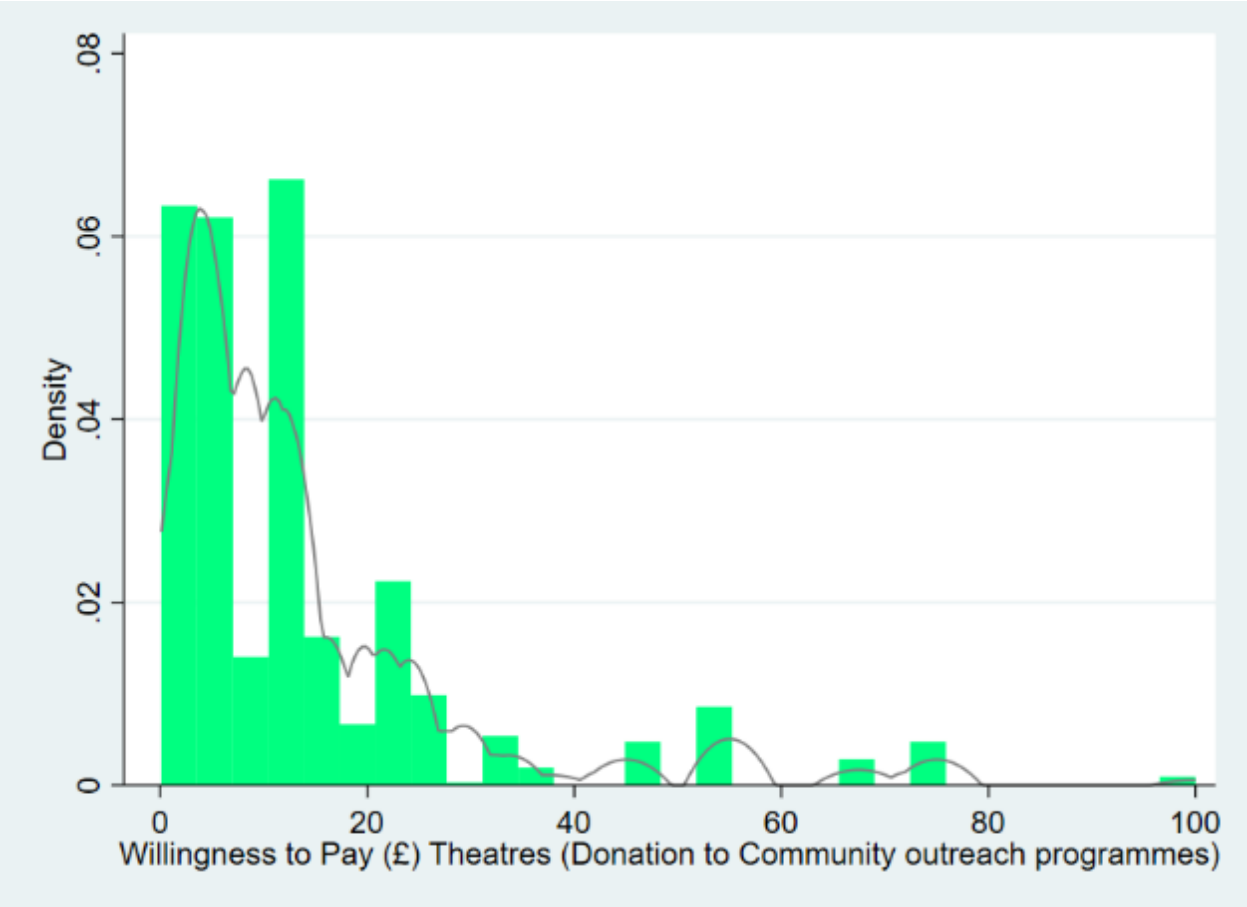
6.4.2.2 *WTP values*

Figure 6.12 Histograms and kernel density estimates: Willingness-to-pay an Increase to taxes for a Theatre



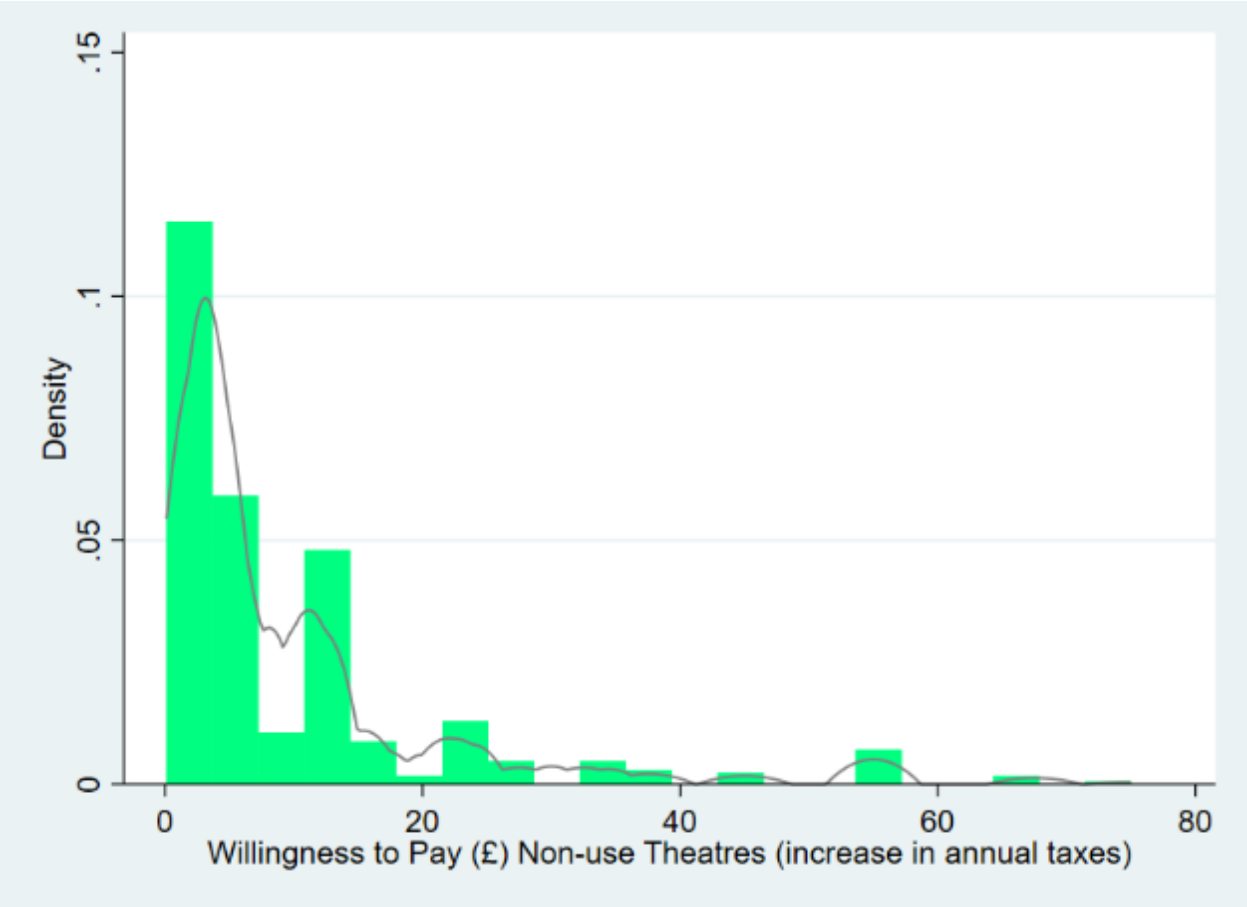
This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 82.53% of responses.

Figure 6.13 Histograms and kernel density estimates: Willingness-to-pay a Donation for Theatre's Community Outreach Programmes



This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 71.19% of responses.

Figure 6.14 Histograms and kernel density estimates: Willingness-to-pay an Increase to taxes for a Non-Use Theatre



This graph does not use the weighted sample. Values include non-zero WTP bids only. This represents 50.58% of responses.

6.4.2.3 *Reasons behind Visitor WTP values*

Table 6.18 presents the reasons behind why respondents were willing to pay for theatres. Table 6.19 provides the reasons for respondents who were not willing to pay for theatres.

Table 6.18 Reasons behind Visitor WTP values

WTP Categories	%
I like visiting/I enjoyed my visit to the [site]	19.9%
I think visitor enjoyment and/or the performance could be improved if the [site] had more funds	11.3%
I may want to visit the [site] in the future	16.4%
The [site] is an important site of cultural heritage that should be protected	26.6%
I don't believe that I would really have to pay	2.8%
My willingness-to-pay is not just for visiting the [site], but also an expression of my support for all the community work they do	22.7%
Other	0.3%

Table 6.19 Reasons behind Use Not WTP values

WTP Categories	%
There are more important things to think about than the [site]	21.7%
I cannot afford to pay to visit the [site]	11.2%
I did not enjoy my visit much	2.1%
I don't plan to ever visit again	3.5%
I am already contributing enough to theatres through my taxes	8.4%
I don't mind making a donation but I don't want to pay an increase in [tax]	18.2%
I need more information to answer this question	4.2%
I don't feel confident stating a value that I would be willing to pay in the current uncertain political climate	4.9%
I don't want to support [site] because I would prefer the venue to host other performance arts shows	0.7%
I don't believe that a [tax] would be raised to pay for a theatre	13.3%
I am not willing to pay a tax increase over [duration] years	9.1%
Other	2.8%

6.4.2.4 *Reasons behind Community WTP values*

Table 6.20 presents the reasons why respondents were willing to donate towards theatre community outreach programmes. The reasons why respondents were not willing to donate towards community outreach programmes is presented in Table 6.21.

Table 6.20 Reasons behind Community WTP values

WTP Categories	Visitors (%)	Non-visitors (%)
I have enjoyed community outreach programmes the [site] have offered	9.2%	0.9%
I think participant enjoyment and/or the activities could be improved if the [site] had more funds	21.2%	10.6%
I want to make sure the [site] continues to provide community outreach programmes to the local area	46.8%	52.9%
I don't believe that I would really have to pay	1.7%	2.0%
My willingness-to-pay is not an expression of support for community outreach programmes the [site] provides, but of my support for the arts and culture in general	20.5%	25.8%
Other	0.7%	7.9%

Table 6.21 Reasons behind Community Not WTP values

WTP Categories	Visitors (%)	Non-visitors (%)
I have more important things to think about than community outreach programmes the [site] provides	12.8%	10.7%
I cannot afford to pay to support the provision of community outreach programmes the [site] provides	21.4%	32.5%
There are other theatres I would rather support	6.3%	7.6%
I don't think I'll ever visit the [site]	4.1%	14.6%
I am already contributing to the [site] through my taxes	13.2%	3.3%
I have already contributed to the [site] by paying for previous workshops	1.3%	0%

I think the [site] should charge for entry to community outreach programmes rather than ask for donations	27.9%	5.5%
I need more information to answer this question	1.3%	6.0%
I don't feel confident stating a value that I would be willing to pay in the current uncertain political climate	2.9%	3.2%
I already answered a question about supporting the [site] and did not want to pay another	4.7%	6.3%
I don't believe that the [site] should provide community outreach programmes	2.1%	1.8%
I don't find the scenario of maintaining the current provision of community outreach programmes realistic	1.0%	1.1%
Other	1.1%	7.4%

6.4.2.5 *Reasons behind Non-visitor WTP values*

The reasons behind why respondents were willing to pay for non-use theatres is presented in Table 6.22. Table 6.23 provides the reasons for respondents who were not willing to pay for non-use theatres.

Table 6.22 Reasons behind Non-visitor WTP values

WTP Categories	%
I may want to visit the site in the future	23.7%
I think visitor enjoyment and/or the performance could be improved if the [site] had more funds	3.7%
I want to make sure the theatre continues to provide residents of the city with performances	20.7%
The theatre is an important site of cultural heritage that should be protected	21.7%
I don't believe that I would really have to pay	0.0%
My willingness-to-pay is not an expression of support for the site, but of my support for the arts and culture in general	29.4%
Other	0.7%

Table 6.23 Reasons behind Non-use Not WTP values

WTP Categories	%
There are more important things to think about than the site	14.4%
I cannot afford to pay to support the work of the site	17.4%
There are other theatres I would rather support	10.7%
I don't think I'll ever visit the site	20.8%
I am already contributing enough to the work of the site through my taxes	1.1%
I need more information to answer this question	3.8%
I don't feel confident stating a value that I would be willing to pay in the current uncertain climate	1.8%
I already answered a question about paying for a theatre through an increase in tax and did not want to pay for another	6.5%
I don't want to support the site because I would prefer the venue to host other performance arts shows	1.2%
I don't believe that a [nontax] would be raised to pay for a theatre	7.6%
I am not willing to pay a tax increase over [duration] years	11.1%
Other	3.7%

Breaking up the community-outreach willingness-to-pay values by familiarity with the programmes their assigned theatre provides, as presented in Table 6.24, we see that those visitors that are more familiar with their assigned theatre's community-outreach programmes give a larger WTP value on average; £15.21 for those visitors fairly familiar with the community outreach programmes, compared to an average of £7.81 for those visitors not at all familiar. Those who said they were 'Extremely familiar' having an average WTP almost five times than of those who said they were 'Not at all familiar'. It is also interesting to note that respondents who gave a WTP of £0 were exclusively respondents who were 'Fairly familiar' or less with the community-outreach programmes their assigned theatre runs. There was no consistent pattern found for non-visitors and their willingness-to-pay averages, with the greatest average for non-visitors who were 'Fairly familiar' with the community outreach programmes (£8.55).

Table 6.24 WTP for community-outreach programmes by familiarity with of community programmes

Summary statistics of community programme WTP	Not at all familiar	Slightly familiar	Fairly familiar	Very familiar	Extremely familiar
Visitors					
Mean (std. err.)	£7.81* (£1.07)	£10.56* (£1.23)	£15.21 (£1.88)	£27.52* (£4.23)	£37.78* (£9.68)
Lower confidence interval (CI) (95%)	£5.60-£9.93	£8.14-£12.98	£11.50-£18.92	£19.16-£35.88	£18.08-£57.48
Median	£5.50	£5.50	£11.25	£16.25	£27.50
Sample size	226	228	207	151	35
Zeros (total sample)	37.0%	15.0%	13.0%	6.0%	4.0%
Non-visitors					
Mean (std. err.)	£4.30* (£0.46)	£5.00 (£0.75)	£8.55* (£2.81)	£4.61* (£2.30)	£2.75* (£0.00)
Lower confidence interval (CI) (95%)	£3.40-£5.20	£3.49-£6.50	£2.60-£14.50	£-1.77-£10.99	£0.00-£0.00
Median	£0.00	£5.50	£4.25	£5.50	£2.75
Sample size	357	51	20	5	1
Zeros (total sample)	54.0%	35.0%	20.0%	45.0%	0.0%

As presented in Table 6.25, we split the community-outreach willingness-to-pay values between those who have previously attended a community-outreach programme run by their assigned use-site theatre in the past 12 months and those who have not. From this split, we see those who have attended have a much larger willingness-to-pay value on average (£22.35) than those who have not previously attended a community-outreach programme (£13.60 respectively). This difference is statistically significant. We also see respondents who have attended a programme within the last 12 months gave far fewer £0 responses (1%-9% compared to those who had not paid previously from 0%-36%). A possible explanation for these findings may be that attending the programmes reveals to respondents how useful they are and are therefore more willing to pay to continue their provision.

Table 6.25 WTP for community-outreach programmes by previous payment for attendance (visitor sample)

Previous users of community workshops/ programmes	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Total

Users who have not paid for community workshops/ programmes					
Mean (std. err.)	£8.58 (£2.94)	£10.52 (£2.93)	£5.79 (£3.15)	£28.32 (£9.46)	£13.60 (£4.38)
Lower confidence interval (CI) (95%)	£2.02-£15.13	£3.76-£17.29	£-1.35-£12.92	£8.26-£48.37	£4.78-£22.42
Median	£11.25	£11.25	£2.75	£18.75	£11.25
Sample size	11	9	10	18	48
Zeros (total sample)	36.0%	14.0%	0.0%	0.0%	13.0%
Users who have previously paid for community workshops/programmes					
Mean (std. err.)	£22.57 (£5.59)	£23.14 (£4.46)	£16.95 (£1.93)	£24.18 (£5.41)	£22.35 (£2.67)
Lower confidence interval (CI) (95%)	£11.33-£33.81	£14.18-£32.10	£13.06-£20.84	£13.31-£35.04	£17.08-£27.62)
Median	£16.25	£13.75	£18.75	£16.25	£16.25
Sample size	51	53	43	52	199
Zeros (total sample)	2.0%	9.0%	5.0%	1.0%	5.0%

6.4.3 WTP validity testing regressions

Table 6.26 Factors associated with willingness-to-pay to keep theatre in city (visitor sample): Multivariate regressions

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Pooled theatre sample
Log age, using age midpoint	7.592*	8.424	10.820	0.993	8.417**
Log of household income	4.089*	1.922	0.408	2.972	1.477
Resident of use city	-6.367***	-2.922	-5.282	-3.411	-5.231***
Number of visits to theatre in past 12 months	6.055***	3.040**	0.733	6.284***	4.573***
Public spending - Arts and culture (e.g. galleries, theatres)	-0.701	3.213	13.126**	-7.462	3.094
Agreement - Visiting theatres increases one's well-being (happiness)	-0.430	-0.612	3.148*	4.592**	1.215
Constant	-70.066*	-43.893	-50.249	-53.908	-50.261**
Observations	207	200	215	189	811
Adjusted R-squared	0.225	0.029	0.194	0.273	0.135

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

Table 6.27 Factors associated with willingness-to-pay for theatre community outreach programmes (visitor sample): Multivariate regressions

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Pooled theatre sample
Log age, using age midpoint	3.248	10.259*	11.807	17.315	9.566**
Log of household income	2.284*	6.063**	-5.621**	2.765	1.423
Resident of use city	0.589	-6.045*	-7.136	-4.730	-3.264
Theatre - Number of visits in past 12 months	5.318***	1.822	4.052	6.217**	4.194***

Agreement - Visiting theatres increases one's well-being (happiness)	-1.284	-1.010	4.094	-1.391	0.135
Satisfied with number of Theatre Community Programmes on offer	9.747***	6.330**	6.715*	4.528	8.512***
Constant	-38.067**	-90.375**	-1.092	-92.119	-52.834**
Observations	180	163	185	157	685
Adjusted R-squared	0.203	0.122	0.241	0.214	0.159

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

Table 6.28 Factors associated with willingness-to-pay for theatre community outreach programmes (non-visitor sample): Multivariate regressions

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Pooled theatre sample
Log age, using age midpoint	0.919	1.759	-1.819	-0.543	-0.072
Log of household income	2.134*	2.184	1.885*	1.445	1.960***
Resident of non-use city	0.000	0.000	0.000	0.000	0.000
Public spending - Arts and culture (e.g. galleries, theatres)	10.692	6.093	1.110	1.191	3.576*
Agreement - Visiting theatres increases one's well-being (happiness)	2.359	1.313	0.715	0.953	1.215**
Constant	-29.594	-28.928	-10.647	-11.483	-19.626**
Observations	79	73	121	92	365
Adjusted R-squared	0.181	0.004	0.021	0.028	0.064

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

Table 6.29 Factors associated with willingness-to-pay to support theatres (non-visitor sample, impure and pure non-visitors): Multivariate regressions

	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Pooled theatre sample
Log age, using age midpoint	2.152	1.167	2.090	1.962	1.860**
Log of household income	2.626***	2.214**	0.817	-0.164	1.367***
With dependent children	2.357	-1.266	1.835	2.434	1.298
Resident of non-use city	1.468	0.716	0.654	1.535*	0.981**
Membership - Member of a museum or gallery	-36.727***	-24.471**	-14.853	-6.737	-20.126***
Agree that Art Galleries should be preserved	226	215	178	240	859
Constant	0.062	0.021	0.011	0.015	0.023
Observations	2.152	1.167	2.090	1.962	1.860**
Adjusted R-squared	2.626***	2.214**	0.817	-0.164	1.367***

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

6.4.3.1 *Social class*

It is a common criticism of funding for the cultural sector that it benefits those of higher social classes more, as they are more likely to attend certain types of cultural offers, such as opera and theatre.

If social class is a major driver of selection into visits to cultural institutions like theatres, then it may the case that social class, rather than household income, is a more important driver of visitor willingness-to-pay for theatres.

To explore this theory, the survey was designed to include a novel set of questions that capture respondents' social background (see section 6.5.1.2)[115]. These included:

- **Questions about parental occupation**, based on 'Socio-economic Classification' (SEC) codes: We create an indicator of coming from a lower social class background for those with parents who were economically inactive or worked in Routine and Semi-routine manual and service occupations.
- **Questions about parental education**: We create an indicator of coming from a lower social class background for those with parents who had either no formal qualifications or qualifications below degree level.
- **Questions about personal education**: We create an indicator of coming from a lower social class background for those who attended a non-selective state school.

We explore the effect of these variables on the theatre visitor WTP results. We run the same set of validity testing regression models, but in this case sequentially add one of the social class variables, reporting the results for the pooled theatre visitor sample, weighted for national representatives on age and gender.

Only in one of the models is the social class variable significant: Parental occupation as Economically Inactive, Semi or Routine manual and service occupations. Theatre visitors whose parents were from a lower socioeconomic class, as defined by Socioeconomic Classification, report significantly lower WTP to preserve the theatre in the city. Furthermore, the inclusion of this social class indicator affects the significance of the income variable, with social class becoming the significant driver of theatre WTP in place of income. This is an indicator that social class – the class into which a theatre visitor was born – is a more significant driver of the values that theatre visitors hold for theatres than their income.

115 Oman 2019. Improving data practices to monitor inequality and introduce social mobility measures. Working Paper. https://www.sheffield.ac.uk/polopoly_fs/1.867756!/file/MetricsWorkingPaper.pdf

Table 6.30 Factors associated with willingness-to-pay to support theatres (pooled visitor sample): Multivariate regressions

	Simple pooled theatre WTP model	Parent occupation	Parent education	Educational background	Full model including income, social class and cultural engagement indicators
	B	b	b	B	
Log age, using age midpoint	4.982	4.873	5.303	5.332	8.164**
Log of household income	3.909**	2.012	4.185**	4.321**	0.566
Parent Inactive, Semi or Routine manual and service occupations		-5.078**			-3.575*
Parent no degree/no formal qualifications			0.146		
Attended non-selective state school				-0.750	
Resident of use city					-4.589**
Theatre – Number of visits in past 12 months					3.722***
Public spending - Arts and culture (e.g. galleries, theatres)					4.307
Agreement - Visiting theatres increases one's well-being (happiness)					0.833
Constant	-47.115*	-25.756	-51.387*	-52.515*	-35.756
Observations	816	631	788	744	628
Adjusted R-squared	0.029	0.026	0.031	0.033	0.105

*Notes: *** significance at <1%; ** significance at <5%; * significance at <10%. Heteroskedasticity-robust standard errors. All VIF scores <2 in pooled regression.*

To explore whether this relationship between social class and theatre WTP holds after including indicators of cultural engagement, in the final column we report on the full pooled theatre WTP model including income, social class and cultural engagement indicators. This shows that the influence of social class continues to be a significant driver of theatre visitor WTP even after inclusion of significant cultural and locational variables. This provides further support for the hypothesis that social class is an important factor behind WTP for certain types of cultural institutions. We recommend that further research be pursued in this area, potentially exploring more detailed indicators of social mobility (having moved from the class in which one was born) as well as social class.

Social class as a driver of WTP is explored in further detail in Appendix Section 6.5.1.2.

6.4.4 Benefit transfer testing

6.4.4.1 *Simple unit benefit transfer*

Table 6.31 Theatre WTP transfer testing: Simple unit transfer errors (Visitor WTP to maintain theatre; Visitor Community Programme WTP; Non-Visitor Community Programme WTP Non-Visitor WTP to maintain theatre)

Gallery	Visitor WTP to keep theatre in city				Visitor WTP Community programme				Non-visitor WTP Community programme				Non-visitor WTP to keep theatre in city			
	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Policy site: Observed mean WTP	£13.59	£13.22	£12.55	£13.07	£11.47	£13.66	£14.26	£15.22	£4.54	£5.41	£4.11	£4.43	£4.59	£5.15	£4.66	£5.55
BT prediction: Pooled mean WTP from study sites	£12.93	£13.06	£13.30	£13.11	£14.36	£13.61	£13.38	£13.13	£4.58	£4.34	£4.77	£4.62	£5.16	£4.96	£5.11	£4.81
Difference (absolute)	£0.66	£0.16	£0.75	£0.04	£2.89	£0.05	£0.88	£2.09	£0.04	£1.07	£0.66	£0.18	£0.57	£0.19	£0.45	£0.74
Transfer error	4.9%	1.2%	6.0%	0.3%	25.2%	0.4%	6.2%	13.7%	0.9%	19.8%	16.1%	4.1%	12.4%	3.7%	9.7%	13.3%
t-test: Difference significant at 5% level	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

6.4.4.2 *Adjusted unit benefit transfer*

Table 6.32 Theatre WTP transfer testing: Adjusted transfer errors (Visitor WTP to maintain theatre; Visitor Community Programme WTP; Non-Visitor Community Programme WTP Non-Visitor WTP to maintain theatre)

City	Visitor WTP to keep theatre in city				Visitor WTP Community programme				Non-visitor WTP Community programme				Non-visitor WTP to keep theatre in city			
	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Income adjustment																
Policy site: Mean income	£41,488	£40,666	£41,844	£41,397	£41,488	£40,666	£41,844	£41,397	£26,086	£26,802	£31,275	£25,637	£35,701	£35,895	£31,672	£35,080
Pooled study sites: Mean income	£41,310	£41,584	£41,181	£41,343	£41,310	£41,584	£41,181	£41,343	£28,188	£27,952	£26,110	£28,516	£34,398	£34,355	£35,542	£34,606
Income ratio (Policy income / Study income)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	1.2	0.9	1.0	1.0	0.9	1.0
Benefit transfer																
Policy site: Observed mean WTP	£13.59	£13.22	£12.55	£13.07	£11.47	£13.66	£14.26	£15.22	£4.54	£5.41	£4.11	£4.43	£4.59	£5.15	£4.66	£5.55
BT prediction: Pooled mean WTP from study sites,	£12.99	£12.77	£13.52	£13.13	£14.43	£13.31	£13.60	£13.15	£4.24	£4.16	£5.71	£4.15	£5.35	£5.18	£4.55	£4.87

adjusted by income ratio																
Difference (absolute)	£0.60	£0.45	£0.96	£0.06	£2.96	£0.35	£0.66	£2.07	£0.30	£1.24	£1.60	£0.28	£0.76	£0.03	£0.11	£0.67
Transfer error	4.4%	3.4%	7.7%	0.5%	25.8%	2.6%	4.6%	13.6%	6.7%	23.0%	38.9%	6.4%	16.6%	0.6%	2.3%	12.2%
t-test: Difference significant at 5% level	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

6.4.4.3 *Function benefit transfer*

Table 6.33 Theatre WTP transfer testing: Reduced WTP regressions for value transfer (Visitor WTP to maintain theatre; Visitor Community Programme WTP; Non-Visitor Community Programme WTP Non-Visitor WTP to maintain theatre)

City	Visitor WTP to keep theatre in city				Visitor WTP Community programme				Non-visitor WTP Community programme				Non-visitor WTP to keep theatre in city			
	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Log of household income	-0.032	0.100	0.176	0.082	0.105	0.124	0.319***	0.183	0.330***	0.360***	0.377***	0.348***	0.118	0.135*	0.217***	0.221***
Log age, using age midpoint	0.100	0.307	0.118	0.297	-0.003	-0.045	-0.102	0.134	-0.384*	-0.239	-0.137	-0.385*	0.013	0.025	0.026	-0.046
Resident of use city	-0.318	-0.392**	-0.349**	-0.299*	-0.416**	-0.355*	-0.265	-0.386**	0.000	0.000	0.000	0.000	0.164	0.167	0.182*	0.130
Constant	2.006	-0.104	-0.228	0.075	1.102	1.028	-0.866	-0.263	-0.798	-1.683	-2.196	-0.983	-0.314	-0.520	-1.378	-1.127
Observations	608	615	598	627	593	600	584	611	286	292	244	273	633	644	681	619
Adjusted R-squared	0.008	0.028	0.029	0.016	0.028	0.024	0.050	0.038	0.049	0.051	0.046	0.046	0.004	0.005	0.013	0.015

*Note * indicates the statistical significance of the regression coefficients at the 99% (***), 95% (**) and 90% (*) confidence levels respectively.*

Table 6.34 Theatre WTP transfer testing: *Function transfer errors* (Visitor WTP to maintain theatre; Visitor Community Programme WTP; Non-Visitor Community Programme WTP Non-Visitor WTP to maintain theatre)*:*

City	Visitor WTP to keep theatre in city				Visitor WTP Community programme				Non-visitor WTP Community programme				Non-visitor WTP to keep theatre in city			
	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth	Birmingham Repertory Theatre	Leeds Playhouse	Manchester Royal Exchange Theatre	Theatre Royal Plymouth
Policy site: Observed mean WTP	£5.86	£5.68	£4.72	£6.25	£7.38	£6.31	£5.63	£7.11	£4.44	£5.48	£4.22	£4.22	£3.86	£3.92	£4.41	£3.03

BT prediction: Applying value transfer function coefficients from pooled study sites to mean policy site characteristics	£5.78	£5.21	£5.31	£5.53	£7.12	£6.24	£6.28	£6.38	£4.27	£3.96	£4.73	£3.91	£3.80	£3.77	£3.62	£4.06
Difference (absolute)	£0.08	£0.47	£0.59	£0.72	£0.26	£0.07	£0.65	£0.73	£0.17	£1.52	£0.51	£0.31	£0.06	£0.14	£0.79	£1.03
Transfer error	1.4%	8.3%	12.5%	11.5%	3.5%	1.0%	11.5%	10.2%	3.9%	27.7%	12.0%	7.4%	1.6%	3.6%	17.9%	34.0%
t-test: Difference significant at 5% level	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	No	Yes

Note that mean WTP for each site will differ slightly to values presented earlier due to the reduced set of control variables and resulting model sample size. Regression model significant at $p<0.005$.

6.5 Other areas of research

Questionnaires, such as civic pride and social mobility, were presented at the end of the survey so as not to bias any WTP values.

6.5.1.1 *Civic value*

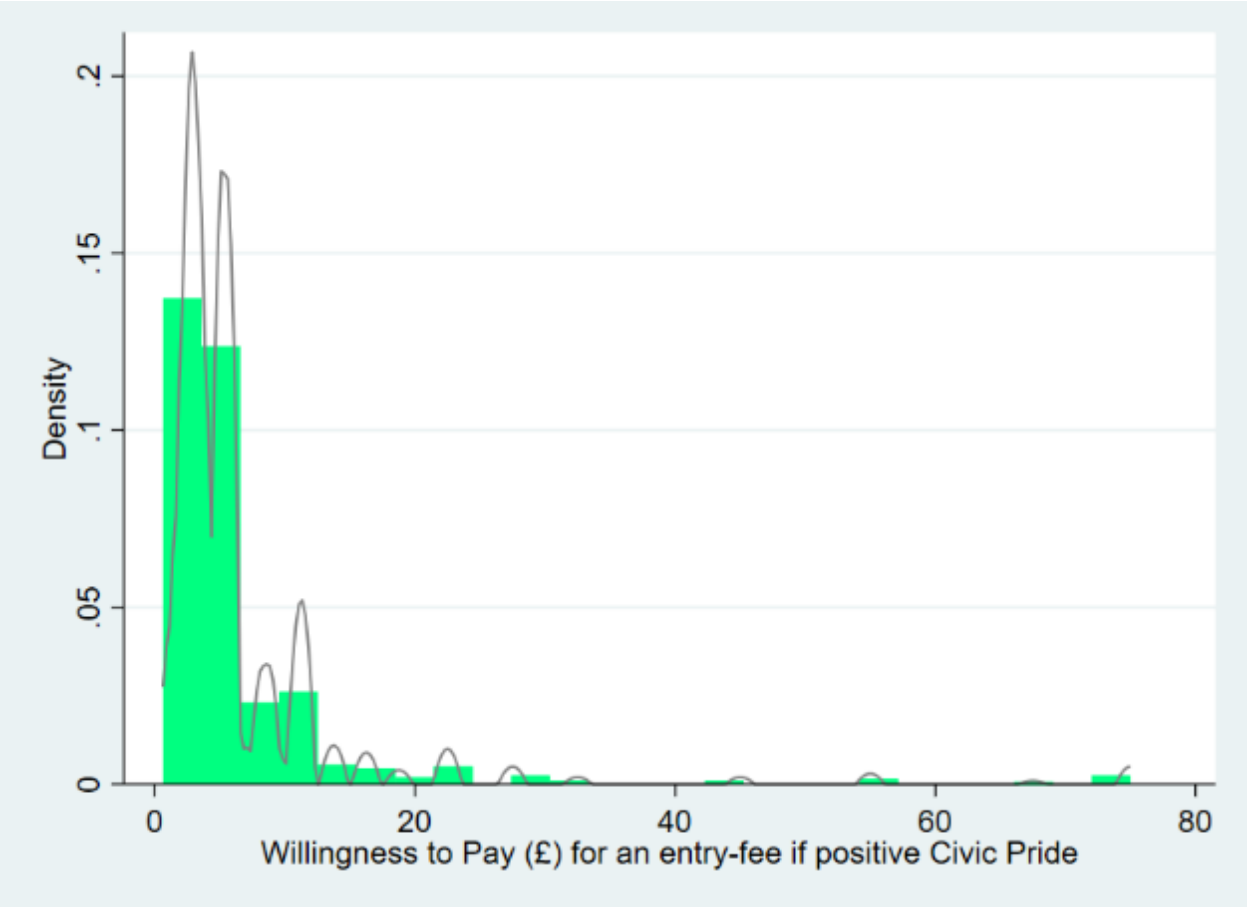
Regional art galleries and theatres provide a range of cultural and community services and are a source of civic and regional pride. Opportunities for cultural engagement at art galleries have also been shown to improve the quality of life of visitors (AHRC, 2015; DCMS, 2014). A Multi-item Scale of Civic Pride[116] was therefore presented to respondents who identified the site being within their region. This scale determined respondents' civic pride for the region.

For simplicity, positive scale items were grouped together. This formed a dummy variable of positively rated civic pride for respondents who share a city with their respective theatre. The aim was not to identify civic pride for cities, rather it was to identify whether those who had greater civic pride for their area also had greater willingness-to-pay for art galleries and theatres.

Overall, art gallery visitors held a positive civic pride for their respective city. When weighted, the average entry-fee visitors with positive civic pride were willing-to-pay was £4.34 (based on a sample of 385 respondents). This is somewhat lower than the £5.40 pooled average (lower bound: £5.01). The distribution of willingness-to-pay values for visitors with positive civic pride is presented in Figure 6.15.

116 E. H. Wood 2006; E. Wood and Thomas 2006

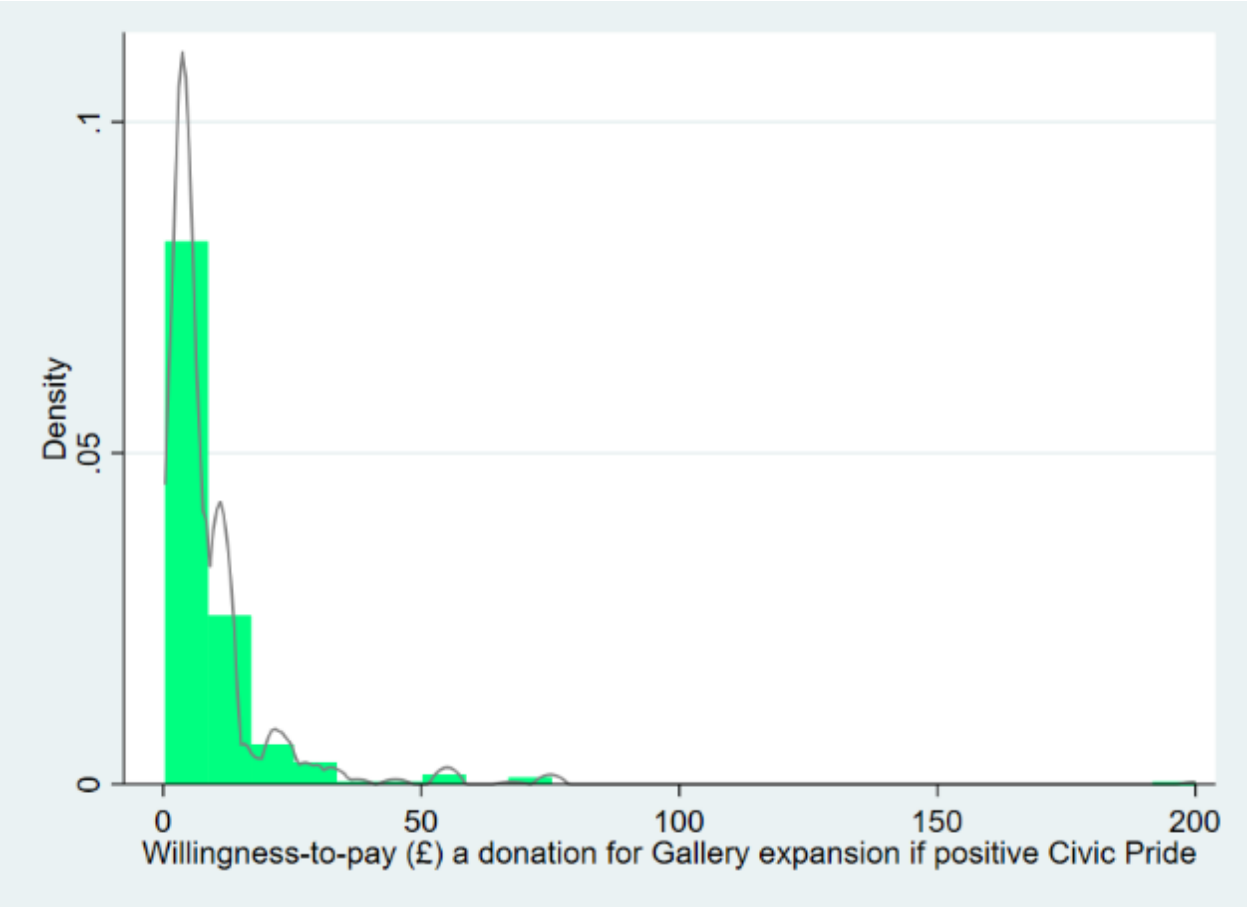
Figure 6.15 Visitors with positive Civic Pride WTP for Gallery entry-fees



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 671 respondents.

For the expansion donations, a weighted average value of £6.15 for positive civic pride visitors (*n* = 387) was similar to that of the pooled average elicited from visitors (£6.34; lower bound: £5.59). As this is a one-off donation, we expected some high values, as presented in Figure 6.16.

Figure 6.16 Visitors with positive Civic Pride WTP a donation for a Gallery Expansion

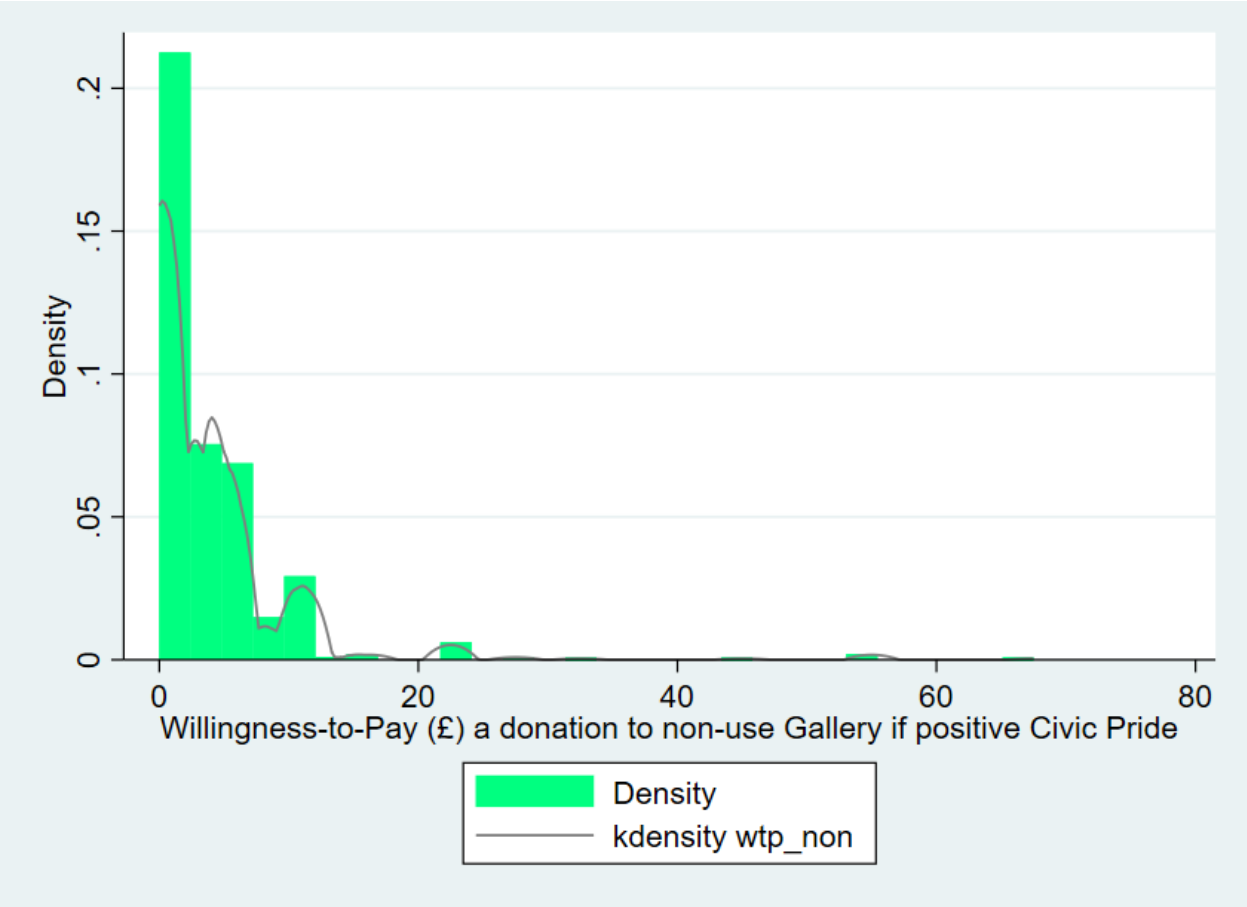


This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 581 respondents.

For the non-use donation, a value of £3.79 for those with positive civic pride was similar to the value held by the pooled value for non-visitors (£3.72; lower bound: £3.20). Although, this civic pride value was elicited from only 67 respondents and should be carefully considered[117]. The willingness-to-donate value distribution are presented in Figure 6.17.

117 Respondents who resided in the site's city (e.g. Manchester for the site of Manchester Art Gallery) and held a positive civic pride value for this city, provided this value (£3.79).

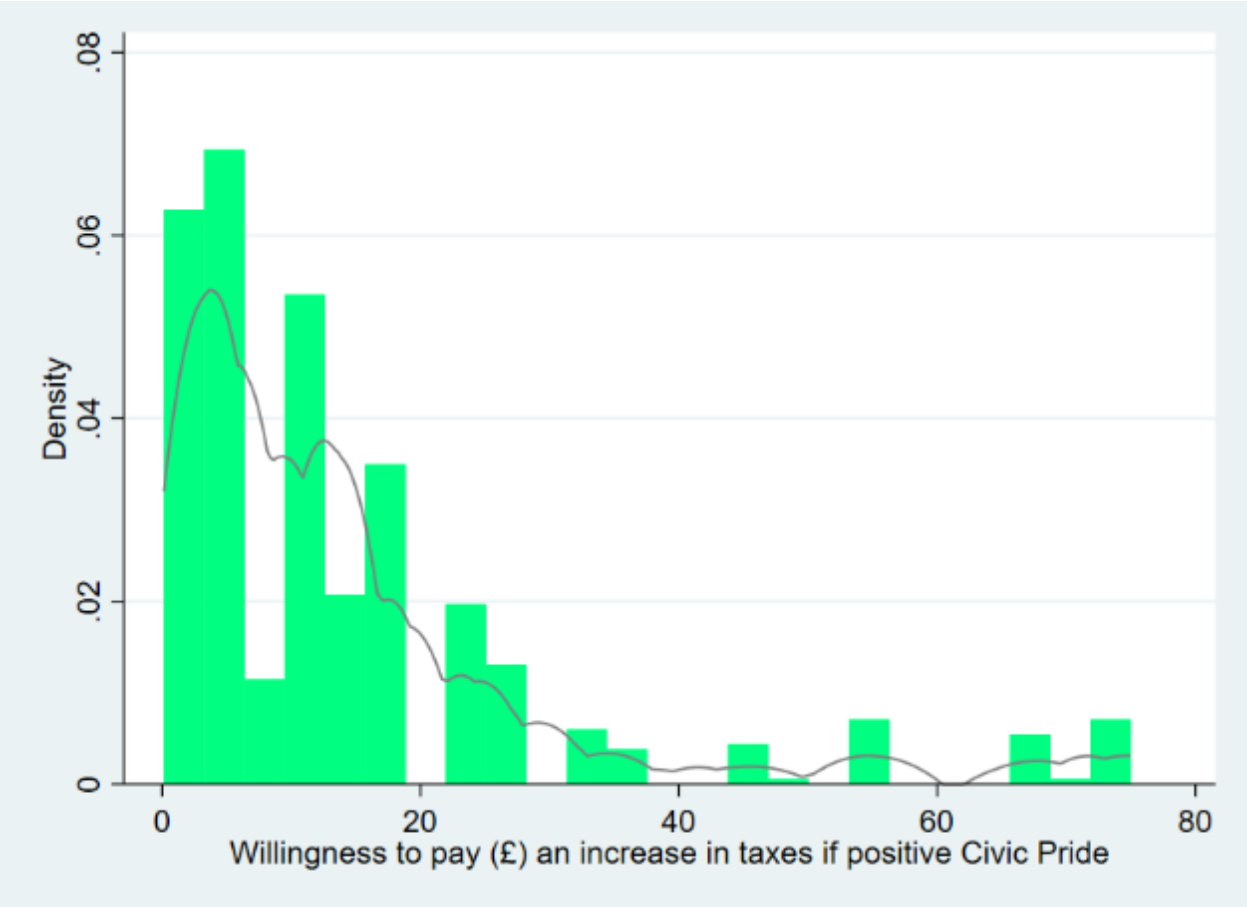
Figure 6.17 Non-Visitors with positive Civic Pride WTP a donation for a Gallery not yet visited



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 461 respondents.

Overall, 695 theatres visitors held a positive civic pride for their respective city. When weighted, the average increase to annual taxes per household was £11.55 for theatre users (based on a sample of 196 respondents). This was somewhat lower than the user pooled average (£13.10) but is similar to the lower bound £11.08 recommended for benefit transfers. The distribution of willingness-to-pay held by positive civic pride users is provided in Figure 6.18. A similar distribution of willingness-to-pay values is found for non-use theatres for those with positive civic pride (see Figure 6.20).

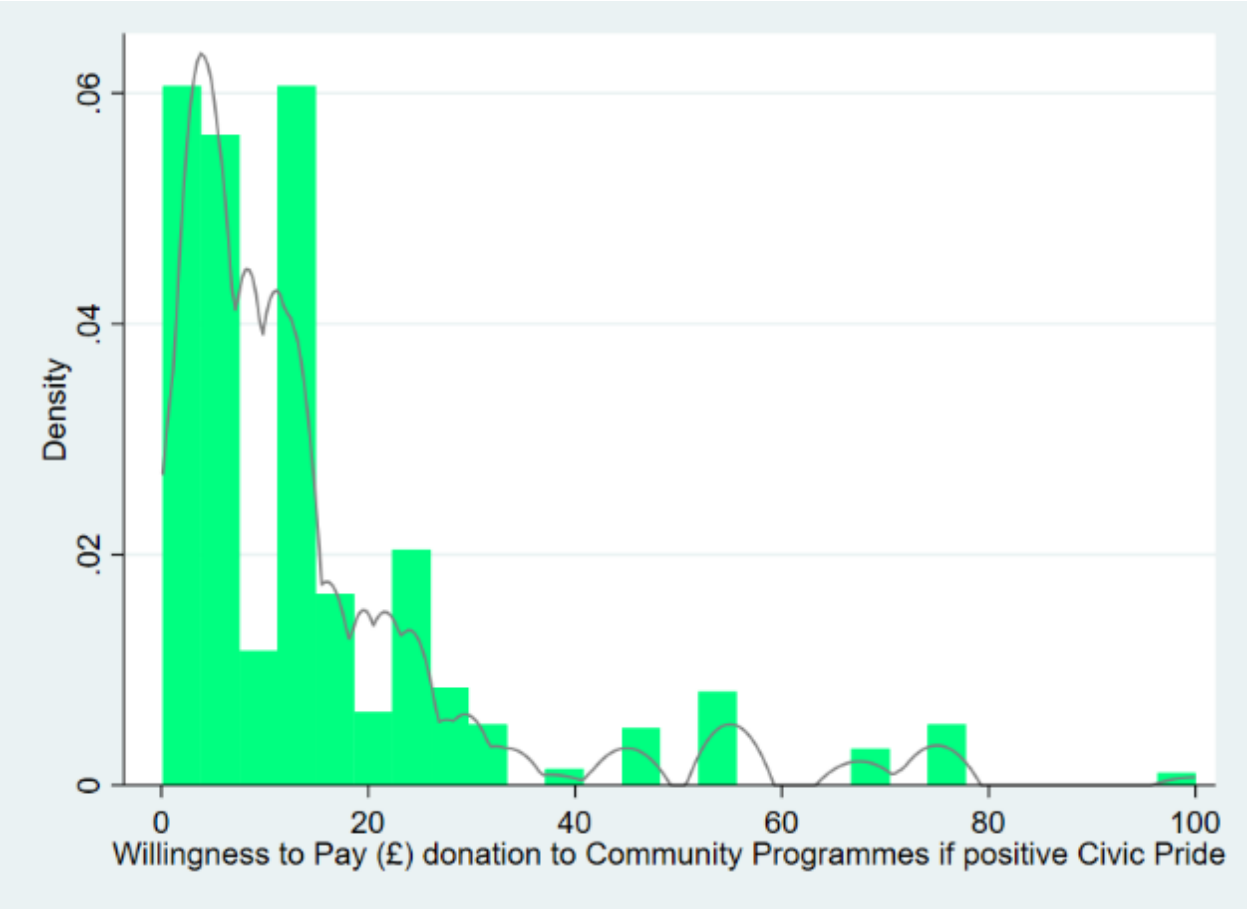
Figure 6.18 Visitors with positive Civic Pride WTP for Theatres from increases to annual taxes



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 587 respondents.

Figure 6.19 presents both visitor and non-visitor values for community outreach programmes. As this is a one-off donation, we expected (and found) higher values (>£60) although clustering was still found under £20. A weighted dataset (n = 193) found users were willing-to-donate an average of £11.59 to theatre community outreach programmes, compared to £13.62 for users and £4.57 for non-users in the weighted sample (with lower bounds £11.49 and £3.77 respectively).

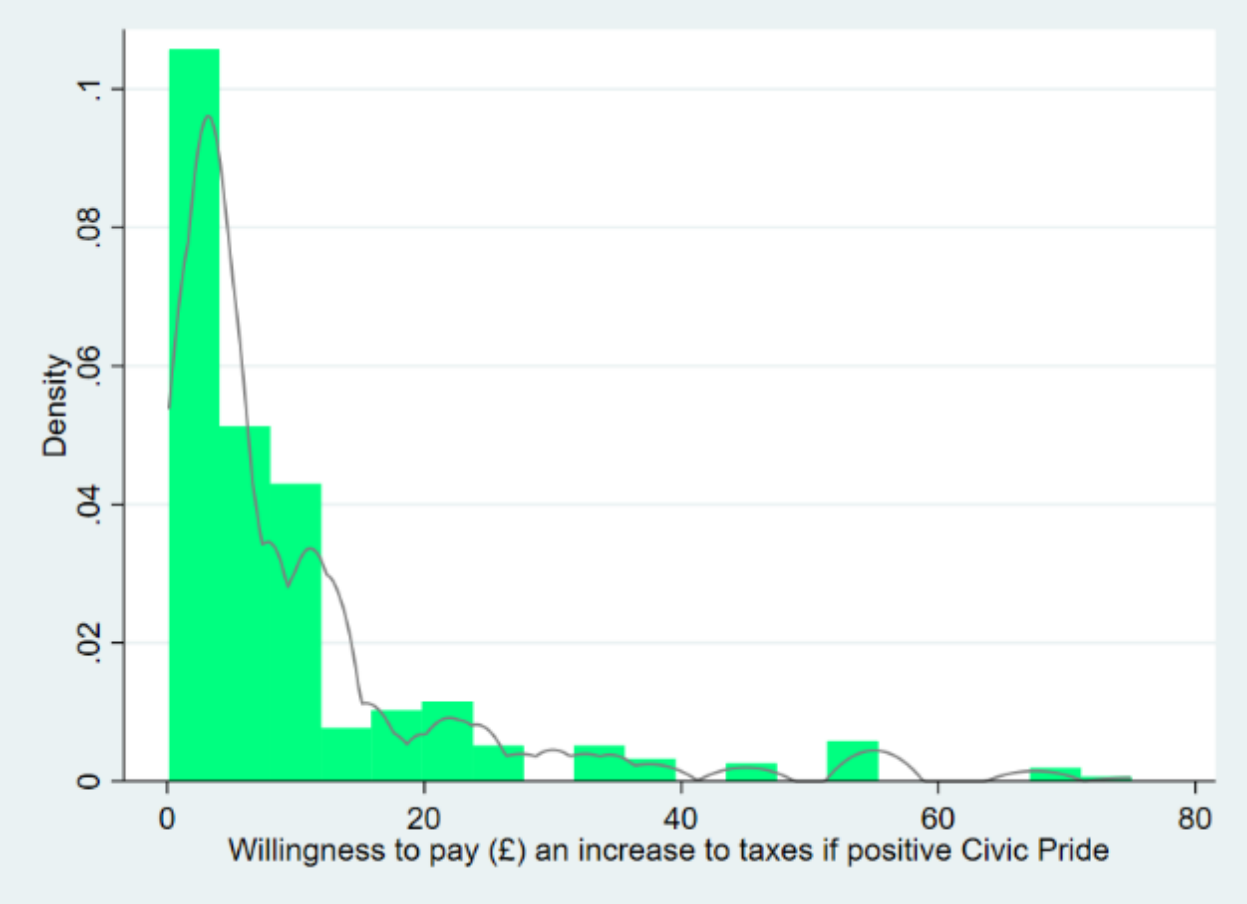
Figure 6.19 Visitors and Non-Visitors with positive Civic Pride WTP for Theatres for donations to Community Outreach Programmes



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 767 respondents.

A weighted dataset (n = 340) found non-visitors were willing-to-pay an average increase of £5.95 to a theatre they had not yet visited (lower bound: £0.68). The willingness-to-pay value distribution is presented in Figure 6.20.

Figure 6.20 Non-Visitors with positive Civic Pride WTP for Theatres from increases to annual taxes



This graph does not use the weighted sample. Values include non-zero WTP bids only. This sample represents 396 respondents.

6.5.1.2 *Social Class*

Oman designed the social mobility questionnaire to improve data practices in monitoring class and social inequality in the arts and cultural sector[118]. The questionnaire asks respondents on their upbringing regarding their education type (e.g. state-run or state-funded, or independent school), parental qualifications and primary carer job. This social mobility questionnaire, in addition to our standard demographics (age, gender, dependents, marital status, education level, employment status, ethnicity, health status, household income) provides a more complete social background for our respondents. To investigate social mobility in arts and culture users, we only looked at the willingness-to-pay for use values only (i.e. art gallery entry fees and increase to household taxes for a previously visited theatre).

When we compare art gallery visitors on their school education (refer to Table 6.35) we can see that those visitors who attended Independent or fee-paying schools with bursary reported higher willingness-to-pay for individual art

118 Oman 2019

gallery entry fees (£8.54). Those visitors who attended state-run or state funded school (non-selective) reported significantly lower willingness-to-pay entry fees (£4.72).

Table 6.35 Art Gallery visitors School education

User School education	State-run or state-funded school - selective on academic, faith or other grounds	State-run or state-funded school - non-selective	Independent or fee-paying school - bursary	Independent or fee-paying school - no bursary	Attended school outside the UK	Other (please specify)	Total
Mean (std. errs.)	£5.62 (£0.35)	£4.72* (£0.18)	£8.54 (£2.11)	£6.21 (£0.99)	£5.80 (£0.96)	£7.84 (£2.12)	£5.37 (£0.19)
Lower confidence interval (CI) (95%)	£4.94 - £6.31	£4.36 - £5.08	£4.30 - £12.78	£4.23 - £8.20	£3.86 - £7.74	£3.04 - £12.64	£4.99 - £5.75
Median	£4.25	£3.75	£3.75	£5.50	£3.25	£5.50	£3.75
Sample size	330	519	49	54	49	10	1011

The same pattern was identified for theatre visitors (refer to Table 6.36); those theatre visitors who attended Independent of fee-paying schools (bursary) reported higher willingness-to-pay values for increases to their annual household taxes (£19.31), with those who attended state-run or state-funded schools (non-selective) reporting the lowest willingness-to-pay values (£12.14). Albeit these differences were not significant.

Table 6.36 Theatre Visitors School education

Visitor School education	State-run or state-funded school - selective on academic, faith or other grounds	State-run or state-funded school - non-selective	Independent or fee-paying school - bursary	Independent or fee-paying school - no bursary	Attended school outside the UK	Other (please specify)	Total
Mean (std. err.)	£13.04 (£1.92)	£12.14 (£1.48)	£19.31 (£4.26)	£13.91 (£3.24)	£12.40 (£2.34)	£19.30 (£10.30)	£13.04 (£1.04)
Lower confidence interval (CI) (95%)	£9.26 - £16.82	£9.23 - £15.05	£10.81 - £27.81	£7.43 - £20.39	£7.71 - £17.10	£-5.90 - £44.51	£11.00 - £15.09
Median	£8.50	£5.50	£13.75	£11.25	£5.50	£5.50	£5.50
Sample size	235	402	71	62	53	7	830

When comparing art gallery visitors' parent education (refer to Table 6.37) we see that those art gallery visitors whose parents have at least one degree qualification have a significantly greater willingness-to-pay for an individual entry-fee to an art gallery (£6.73) compared to visitors whose parents hold no formal qualifications (£4.22).

Table 6.37 Art Gallery Visitors Parent Education

Parent education	At least one has a degree level qualification	Qualifications below degree level	No formal qualifications	Other (please specify)	Total
Mean (std. err.)	£6.73* (£0.51)	£5.50 (£0.30)	£4.22* (£0.23)	£2.07* (£0.43)	£5.47 (£0.21)
Lower confidence interval (CI) (95%)	£5.72 - £7.73	£4.92 - £6.09	£3.77 - £4.67	£-3.42 - £7.55	£5.07 - £5.88
Median	£4.25	£4.25	£3.25	£1.75	£3.75
Sample size	294	437	228	2	961

When comparing theatre visitors' parent education (refer to Table 6.38) we see the same pattern with theatre visitors whose parents hold at least one degree level qualification willing-to-pay a greater increases to their taxes (at £13.28) compared to those visitors whose parents hold no formal qualifications (£11.55). However, this difference is not statistically significant.

Table 6.38 Theatre Users Parent education

Parent education	At least one has a degree level qualification	Qualifications below degree level	No formal qualifications	Other (please specify)	Total
Mean (std. err.)	£13.28 (£1.53)	£13.89 (£1.51)	£11.55 (£2.49)	£13.15 (£1.07)	£13.28 (£1.53)
Lower confidence interval (CI) (95%)	£10.26 - £16.30	£10.91 - £16.86	£6.61 - £16.49	£11.06 - £15.25	£10.26 - £16.30
Median	£11.25	£5.50	£5.50	£5.50	£11.25
Sample size	299	398	119	816	299

When comparing art gallery visitors' parents' jobs (refer to Table 6.39) we see that those whose parents held modern professional occupations hold the highest willingness-to-pay for gallery entry fees. The lowest willingness-to-pay is from those art gallery visitors whose parents held routine manual and service occupations (at £4.05), which is significantly lower than values stated by art gallery visitors whose parents held other parental occupations.

Table 6.39 Art Gallery Visitors' Parent job

Parent job	Inactive	Long term unemployed	Short term unemployed	Retired	Middle or junior managers	Routine manual and service occupations	Semi-routine manual and service occupations	Clerical and intermediate occupations	Technical and craft occupations	Traditional professional occupations	Modern professional occupations	Other	Total
Mean (std. err.)	£5.72 (£0.85)	£5.21 (£1.94)	£4.39 (£0.85)	£4.93 (£0.86)	£5.32 (£0.67)	£4.05* (£0.30)	£5.03 (£0.56)	£6.19 (£0.66)	£4.93 (£0.30)	£4.28 (£0.60)	£6.24 (£0.53)	£5.71 (£0.95)	£5.25 (£0.19)
Lower confidence interval (CI) (95%)	£3.53 - £7.90	£1.03 - £9.40	£2.48 - £6.30	£3.10 - £6.76	£3.98 - £6.65	£3.46 - £4.64	£3.91 - £6.14	£4.89 - £7.49	£4.33 - £5.53	£3.07 - £5.49	£5.20 - £7.28	£3.76 - £7.66	£4.89 - £5.62
Median	£5.50	£3.25	£5.50	£4.25	£4.25	£3.25	£3.25	£4.25	£4.25	£3.25	£4.25	£5.50	£4.25
Sample size	6	14	10	16	77	104	131	122	161	42	156	26	865

A similar pattern was observed for theatre visitors (refer to Table 6.40) as those whose parents held modern professional occupations reported the highest willingness-to-pay as increases to their taxes (at £13.93). Theatre visitors whose parents held routine manual and service occupations reported significantly lower willingness-to-pay values (£6.18).

Table 6.40 Theatre Visitors' Parent job

Parent job	Inactive	Long term unemployed	Short term unemployed	Retired	Middle or junior managers	Routine manual and service occupations	Semi-routine manual and service occupations	Clerical and intermediate occupations	Technical and craft occupations	Traditional professional occupations	Modern professional occupations	Other	Total
Mean (std. err.)	£9.38 (£4.21)	-	-	£9.64 (£5.57)	£13.11 (£2.24)	£6.18* (£1.15)	£12.63 (£2.24)	£11.89 (£1.69)	£13.77 (£2.68)	£13.25 (£5.08)	£13.93 (£2.60)	£24.77 (£9.81)	£12.66 (£1.08)
Lower confidence interval (CI) (95%)	£-4.00 - £22.77	-	-	£-4.00 - £23.27	£8.67 - £17.56	£3.90 - £8.47	£8.16 - £17.09	£8.53 - £15.24	£8.44 - £19.10	£2.89 - £23.61	£8.79 - £19.08	£4.44 - £45.11	£10.54 - £14.79
Median	£13.75	-	-	£0.00	£11.25	£2.75	£11.25	£7.50	£5.50	£2.75	£11.25	£11.25	£5.50
Sample size	4	-	-	7	96	68	81	120	89	32	133	23	653

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