Heritage and the value of place

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1. Executive Summary

- This study develops a set of monetary values for the 'everyday heritage' sites that people use and experience in their local area, such as libraries and high streets. It does so using metrics and methods consistent with UK Government Treasury Green Book evaluation guidance (2018).

- Passers-by can get enjoyment from the aesthetic and historic qualities of historic buildings. This is an important element of the value of heritage to local place-making. This positive benefit from heritage has not been valued previously in England and is evidenced for the first time here.

- Surveys were designed to reveal local heritage values for historic high streets and historic civic buildings from local residents in eight English cities: Bolton, Huddersfield, Hull, Bristol, Exeter, Lincoln, Norwich, and York.

- Valuations represent the local residents' Willingness To Pay (WTP) to keep the heritage site in its current good condition. Four different places across England were surveyed in each category of:
    - o Pre-industrial historic high street
    - o Industrial-era historic high street
    - o Historic library
    - o Historic town hall

- WTP values from each of the four places in each heritage category are 'pooled' into a combined sample. This pooled sample can then be transferred to another site via Benefit Transfer.

- Benefit transfer is the process of taking average WTP values for a category of local heritage from one research study and transferring it to another high street or civic building to evidence the value of that place in an economic business case within acceptable degrees of confidence that this estimate is representative of the historic place being valued.

- Surveying multiple sites reflects a more robust average value of the historic place and enables the values to be 'transfer tested' to estimate the amount of 'error' that is introduced when transferring to another historic high street or civic building in a different place.

- Benefit transfer testing of the heritage places surveyed in this study finds that the Pre-industrial high streets and historic libraries WTP values can be transferred to historic sites with similar characteristics across the country with confidence (i.e. acceptably low risk of introducing transfer error). Town hall WTP values should be adjusted to demographic (socioeconomic) characteristics of the local population. WTP values for Industrial-era high streets are not robust for benefit transfer as transfer testing showed that transfer errors are in excess of recommended levels.

- The values contribute to a Local Heritage Bank of Values that can be used by a range of stakeholders to contribute to the business case in support of England's local heritage. Smaller projects can also use the Local Heritage Bank of Values to understand the value of their historic place without the need of funding a dedicated data collection and research.

Background

Protecting and preserving heritage is a concern for the public across England and the UK. Recent research has found that ninety-five percent of adults in England think it is important to look after historic buildings, seventy-three percent had visited a heritage site over twelve months, over 315,000 people were heritage volunteers, and eighty percent of people thought that local heritage makes their area a better place to live.[1] Previous research by Historic England has also demonstrated that people who state they live in historic areas have a stronger sense of place to their local area than those who do not, corroborating Historic England's wider place-making strategy.[2] Place-making is a process that shapes our public spaces and buildings, bringing together communities to improve a place's cultural, economic, social and environmental situation. This is assisted through a clear understanding of the historic significance of local areas.

At the same time, a large amount of research in the field of public health and inequalities has been conducted on how urban environments affect various aspects of wellbeing. This includes, for example, evidence on the links between greenspace and health,[3] and the role of built environment interventions in addressing fear of crime and mental wellbeing.[4]

Despite the prominence of heritage in the physical, social, economic and cultural landscapes of the UK, there remain gaps and limitations in our understanding of how historic places benefit those who live around them, and what these benefits mean in monetary terms. On a practical level, there is a need for the value that local heritage sites provide to the public to be quantified in economic terms in a way that is consistent with HM Treasury Green Book 2018 best practice guidelines[5] to avoid sub-optimal decisions around investments and preservation.

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1 Pennington et al. 2019

2 Place-making relates to built heritage and its role in the wider the built environment, with strong linkages to planning and extensions into 'place-branding', whereby local communities use heritage assets to promote a place.

3 Astell-Burt et al. 2014; van den Berg et al. 2015; Nieuwenhuijsen and Khreis 2017

4 Lorenc et al. 2013; Foster et al. 2013; Mappiness research: MacKerron and Mourato 2013

5 H. M. Treasury 2018

Historic England is moving away from a purely assets-based approach towards a **mixed asset- and area-based approach, where the latter focuses on the role of heritage assets in creating place**. Evidence on the value of heritage in local place-making, place-branding, and the attractiveness of a place to businesses and citizens[6] can contribute to the development of Local Economic Partnerships (LEP) and Local Industrial Strategies. The importance of place and of the heritage sites within it are part of the competitive advantage of local areas. Evidence on the value of historic places can be the differentiator for LEPs, and a unique selling point for local people when describing what is special about their local place. Underlying this argument is the acknowledgement that monetary values are a very important – although not the only – consideration in the business case evaluations of government, planning departments, and funders. By better understanding the value that local people place in different types of heritage building in their area, it is possible to map heritage's contribution to place-making, to prioritise investment in maintenance of those key heritage sites that provide greatest value, and to better communicate to stakeholders, decision-makers and business case the value of heritage in the place-making process. In this study the term 'value' will refer to local residents' willingness to pay (WTP) values.

This research fits into the Department for Digital, Culture, Media and Sport (DCMS) Culture and Heritage Capital Programme (CHC). Culture and heritage capital sits alongside other forms of capital, as financial, human, social and natural capital to "recognize the distinctive features of artworks and other cultural goods as capital assets, and to capture the ways in which such assets contribute, in combination with other inputs, to the production of further cultural goods and services".[7] Historic places provide both a stock of heritage assets which can be preserved for future generations, and a flow of benefits to the people and places around them. We explore these different elements of value further below.

Our approach

This study develops a set of monetary values for the 'everyday heritage' sites that people use and experience around them in their local area using metrics and methods which are consistent with HM Treasury Green Book evaluation guidance, as required by central/local Government. This is in line with future Historic England strategies for prioritising HM Treasury Green Book compliant social and economic research and Historic England's move to a more area -based approach treatment of historic places.

A survey of residents (defined as current residents or those who have been resident in the past 3 years) in eight selected cities was designed to collect Willingness to Pay (WTP) for their local heritage places. The data for this study was collected using a combination of online questionnaires

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6 E.g. 'Heritage Counts 2018 – Heritage in Commercial Use' 2018

7 Throsby 1999

and face to face (F2F) interviews. The aim of the survey is to produce a set of estimates of WTP values for different categories of heritage. This will provide an evidence base in the form of a Value Bank which can be applied to other historic places to understand their economic value, without the need of funding a dedicated data collection and research.

Throsby[8] outlines how the economic value of heritage can be divided into three identifiable ways in which individuals experience heritage - use, non-use, or as a beneficial externality. The Total Economic Value of a heritage site is made up of all three: a combination of use value (benefits derived from either direct or indirect use of the good being valued, usually including option value associated with the possibility of using the good in future) and non-use value (existence or bequest value associated with knowing that others may benefit from the good). The third type of value that people can experience from heritage derives from the fact that heritage may generate positive spillovers, or externalities. Heritage buildings generate a beneficial externality if passers-by enjoy their aesthetic or historic qualities. This beneficial externality is an important element of the value of heritage to local place-making. The positive spillovers from heritage are an identifiable and potentially significant value of heritage that accrues to individuals. Although in principle the economic value of such a benefit could be estimated, in practice it seldom is. This is an important new contribution of this report, and one that can arguably only be captured through asking residents to state their preferred WTP value (i.e. Stated Preference (SP) methods).

This study elicited local heritage values for eight English cities: Bolton, Huddersfield, Hull, Bristol, Exeter, Lincoln, Norwich, and York. The study provides estimated values for the following types of heritage places within these cities:

High streets

Not all historic high streets are the same. To capture the difference between the heritage value of high streets of different historical character, we elicit separate values for high streets in cities that are broadly classified as Pre-industrial (towns/cities which contain some architecture dated before the nineteenth century) or Industrial-era (those containing no or few buildings aged before 1800, and predominantly constructed in the industrial era of the nineteenth century).

8 Throsby 2019

- **Historic high streets in Industrial-era cities,** based on four survey sites: Bolton Churchgate / Deansgate; Huddersfield King Street; Hull Whitefriargate; Bristol Corn Street/ Clare Street
- **Historic high streets in Pre-industrial cities,** based on four survey sites: Exeter High Street; Lincoln High Street; Norwich Pottergate / Bedford Street; York Stonegate

<u>Civic buildings</u>

- **Town halls,** based on four survey sites: Bolton Town Hall; Exeter City Council (Guildhall); Huddersfield Town Hall; Norwich City Hall
- **Central libraries,** based on four survey sites: Bristol Central Library; Hull Central Library; Lincoln Central Library; York Central Library.

Stated preference studies take a 'public good' that is currently experienced for free and ask survey respondents how much they would be willing to pay to continue to enjoy it. The technique was originally developed by environmental economists, but in the field of cultural value, it is increasingly common for economists to ask people how much they would be willing to pay to access or preserve a site of cultural heritage. Examples include eliciting the public's willingness to pay for Grainger Town area of Newcastle upon Tyne,[9] or of a conservation and improvement program in the historic core of the city of Split in Croatia[10]. The challenge is that these WTP values apply only to the specific site on which the WTP survey is taken. They do not necessarily fit every historic town core, because each heritage site is different, and every group sampled may have a different value for their local heritage.

In the policy world, it is often necessary to make the business case for a heritage place – which can be defined as either an individual building like a historic town hall or a heritage place like a historic city core - without the time or resources to perform a bespoke willingness to pay survey. Guidance from the literature states clearly that it is not acceptable to take the WTP value estimated for a single one historic site– like Grainger Town or Split - and apply it to the historic site in our own business case, because the sites may differ in so many ways that WTP for one site is not applicable to another.[11] That is why it is necessary to survey multiple historic places and elicit WTP values for

9 Garrod et al. 1996

10 Pagiola 2001

11 Johnston et al. 2015

each of them. This approach has been previously adopted by the European Union[12], and the DCMS[13], as it provides WTP values which can be transferred in a more statistically robust way, since valuing multiple sites will reduce the likelihood of one site drastically influencing the averaged value of all the sites. That is, no single site can bias the results by being substantially different to the historic place to be valued in the business case.

When multiple sites have been surveyed, the average WTP values for each site can be 'pooled' into a combined sample. This 'pooled WTP' for a particular type of heritage site or place can then be transferred to another site or place with greater confidence that it is representative of the type of historic site or place being valued in the business case.

The objective of this study is to survey four heritage sites within each category of high street and civic building, in order to combine the average WTP values for each site into a 'pooled WTP' value, which can then be reliably transferred to comparable high streets or civic buildings in England. This has applications for developing business cases for government and local councils, constructing funding calls, and responding to planning consultations.

Valuations for the local heritage sites obtained in the survey represent the local residents' willingness to pay to keep the heritage site in its current good condition.[14] The survey presents respondents with a hypothetical scenario where a local trust would be set up to maintain the historic sites, due to a shortfall in public funding. The survey collects two kinds of WTP values for each city: one on the value of the historic high street and another for specific historic civic buildings within the city.

A number of statistical tests must be run on the WTP values to ensure that the WTP values can be robustly 'transferred' to other sites. This process is called 'benefit transfer' and the statistical analysis tests for 'transfer error'. This process is explained in more detail below.

Willingness to pay results

This study produces WTP values for two types of high streets: Those originating from the Pre-industrial revolution era (pre 1800) cities (Pre-industrial), and those from post 1800 (Industrial-era) cities. Note that in all cases 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. For the purposes of realism when transferring to external business cases, it is recommended to take

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12 Mourato et al. 2014

13 Lawton et al. 2018

14 This is on the basis of evidence from the survey that a high proportion of residents considered the sites to be in this state.

this lower bound to correct for the features of the hypothetical survey (explained in more detail in Methodological Considerations below):

- **The WTP estimate is £7.80 to maintain the historic character of Pre-industrial high streets in good condition per household per year.** This is based on a pooled dataset of WTP values for four Pre-industrial high streets. The average WTP value for the four pooled Pre-industrial high streets is £9.28, with a range of average WTP values from £8.61 to £13.07 for each high street.[15]

- **The WTP estimate is £6.31 to maintain the historic character of Industrial-era high streets in good condition per household per year**. This is based on a pooled dataset of WTP values for four Industrial-era high streets. The average WTP value for Industrial-era high streets is £8.51, with a range of average WTP values from £3.34 to £11.63 for each high street. The wider range for Industrial-era compared to Pre-industrial high streets indicates that there is more variation between Industrial-era high streets in our sample than Pre-industrial high streets. We explore the effect this has on transferability of the values to other high streets later in this report.

This study also produces WTP values for two types of historic civic buildings: town halls and public libraries. Historic civic building WTP values combine users and non-users in the sample, with controls for any difference in the values obtained, but exclude those who have never heard of the building. We must also account for the fact that some respondents may have direct use benefits if they have previously accessed the building and made use of its services. We designed the survey instrument to ask respondents to think only of the heritage value of the building itself. The estimated WTP values were:

- **The WTP estimate is £5.73 to maintain the historic character of town halls in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic town halls. The average WTP value for four pooled town halls is £7.29, with a range of average WTP values from £4.47 to £9.04 for each town hall.

- **The WTP estimate is £7.67 to maintain the historic character of libraries in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic libraries. The average WTP value for the four

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15 In all cases the possible WTP responses include both positive values and non-positive (zero) values, in line with best practice, ensuring that those who have no actual value for the site are also represented in the study.

pooled libraries is £9.79, with a range of average WTP values from £7.76 to £13.49 for each library.

This higher WTP for libraries in comparison to town halls may be related to peoples' being more likely to visit libraries (21% do so more than once a month) compared to town halls (12% visit more than once a month). Additional analysis in this report shows that WTP for historic libraries is positively associated with regular library usage. These results indicate that more regular users hold higher values for the historic library, which aligns with theoretical expectations.

Benefit transfer: A bank of values for local heritage

Benefit transfer is the process of taking average WTP values for a category of local heritage (for instance, high streets or civic buildings) from one research study (such as this report) and transferring it to another high street or civic building. A set of tests are conducted to help ensure that this transfer will provide robust values when applied to a new site enabling the values to be used in business cases.

In statistics as a sample size grows, the average gets closer to the 'true' average of the whole population. Surveying multiple similar heritage sites in each category of high street and civic building, rather than one, gives greater confidence that the WTP values are representative of 'an average historic site of that type'.

Some error will always be introduced through benefit transfer because no two heritage sites are the same in characteristics. It is recommended to statistically test how much error is created when transferring from the 'study sites' (the historic high streets and civic buildings surveyed as part of this study) to a hypothetical 'policy site', which would be the historic high street or civic building that needs to be valued for a business case (or other purpose) but for which WTP values have not previously been estimated. To do this - and following best practice in European Union and UK Government studies[16] - 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, which is recommended at 40% in the literature.[17]

The procedure as described above is known as 'simple' unit transfer. In addition to 'simple' benefit transfer, which takes an average WTP from the average WTP of all of the four sites surveyed, there

16 Lawton et al. 2018; D. Fujiwara et al. 2018; S. Mourato et al. 2014

17 Ready and Navrud 2006

are also more sophisticated transfers which allow the analyst – the person calculating the business case for the heritage site – to adjust the WTP values to the characteristics of that site, such as income or other demographic or geographic data. This has the potential to adjust the WTP value to make it more tailored to the specific characteristics and local population of the historic place. 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.

1. *Simple unit value transfer*, where average WTP is taken from this study and applied directly to a business case for another historic place without any adjustments for the specific context of that historic place.

2. *Adjusted unit value transfer*, where the transfer accounts for differences in characteristics between the heritage sites used in the Local Heritage Value Bank and another historic place.

3. *Benefit function*, where WTP from the Local Heritage Value Bank is adapted to fit multiple characteristics of the historic place in a business case, such as sociodemographic characteristics of visitors and the surrounding population and other measurable characteristics.

Transfer testing in this report enables evidence-based conclusions about the most appropriate transfer method for each category of local heritage in the Local Heritage Value Bank. The Local Heritage Value Bank table summarises the key findings of this study and provides guidance for people who want to use the values in their business case assessments.

Benefit transfer testing of the heritage sites surveyed in this study finds that the Pre-industrial high streets and historic libraries WTP values can be transferred to comparable historic sites across the country with acceptably low risk of introducing transfer error. Historic town hall WTP values can be transferred only with adjustment to population demographics (socioeconomic) of the local population in business cases. As is always the case with benefit transfer methods, it is necessary to acknowledge that some error will be introduced when transferring values. This is labelled clearly in the reporting: The overall findings were:

- For **Pre-industrial high streets** transfer errors (TE) are safely below the acceptable level of transfer error using any of the three transfer methods. **Conclusion:** WTP values for Pre-industrial cities can be transferred to comparable sites with relatively low risk of transfer error.
- **Historic libraries:** Transfer errors are at or below the acceptable levels of transfer error for simple and adjusted transfer methods. **Conclusion:** WTP

values for historic libraries can be transferred to comparable sites with acceptable risk of transfer error using these two methods, but not recommended for function transfer method.

- In some cases, such as **town halls**, acceptable levels of transfer error are achieved only with adjustment to the income differentials between towns (adjusted transfer method). **Conclusion:** Caution should be applied when transferring these values, and only with consideration of the income differences between the study town halls and the business case site.

- Even more caution should be applied to **Industrial-era high streets**, where transfer errors were outside of the acceptable level with all transfer methods. Industrial-era high street WTP should not be transferred to other sites, because the WTP values varied too much between the four sites surveyed to provide a robust average WTP value that can be considered representative of other Industrial-era high streets in the country. **Conclusion:** WTP values be seen only as indicative of the values that people hold for these four particular Industrial-era high streets, and not for Industrial-era high streets as a whole. Detailed reporting of transfer errors can be found in Section 5.3 of the report.

Methodological considerations and application to business cases

The final Local Heritage Bank of Values table presents pooled WTP values for local heritage sites – Pre-industrial and Industrial-era high streets, historic libraries and historic town halls. The summary table below shows which WTP values for local heritage values are robust for benefit transfer and under which methods. The table includes the key findings from transfer testing to enable practitioners to apply the heritage values more widely in their value for money and business case calculations.

The Local Heritage Value Bank can be used by a range of stakeholders and contribute to business cases in support of England's local heritage:

- **Local residents:** WTP value estimates for local heritage sites that can be used in public consultations and planning decisions, to demonstrate the value of local heritage in monetary terms to be included in business case benefit cost analysis.
- **Local and National Government:** The values produced can be applied to Government business cases to quantify the benefits associated with the preservation and maintenance of historic places at the local level. WTP values can be aggregated to the national level to provide estimates of the overall social welfare generated by local heritage. This evidence can be used when presenting evidence in the planning process for large national infrastructure projects impacting on heritage sites. This research will be of relevance to

audiences in central government; as well as Local Authorities and Local Economic Partnerships.

- **Historic England:** The Local Heritage Value Bank provides an evidence base demonstrate the benefits of local heritage places and their role in place making and community and social values. This will provide an off-the-shelf set of values for application in future heritage case studies as well as future cultural heritage capital accounts. By better understanding the value that local people place in different types of heritage building in their area, it is possible to map their contribution to place-making, to prioritise investment in maintenance of those key heritage sites that provide greatest value, and to better communicate to stakeholders, decision-makers and business case the value of heritage in the place-making process.

The final section of the report provides a worked example of how to apply values from the Local Heritage Value Bank to your own business case for the value of historic places to local populations. We outline the considerations that should be taken when applying these values into business cases for local heritage.

- It is important that business cases be evidenced in a realistic way, to prevent over-attribution of value to the historic place in your business case.
- Business cases should base their calculations on a realistic catchment of the local population. An unrealistically large catchment area will lead to over-estimation of value, which will reduce the robustness of the results. WTP values should be aggregated to the number of households in the local area. The appropriate local catchment area is to some extent subjective. In the survey, it is defined as the geographical area within which residents are likely to have heard of or walked past the heritage site. We therefore urge business cases to err on the side of caution and limit the local area catchment area to households within the direct Local Authority district.

As outlined above, some transfer error will always be introduced when taking WTP values from study sites (the Local Heritage Value Bank) to a business case site. This can partly be addressed by selecting only those transfer methods which have been tested and produce acceptable levels of error. Other considerations relate to the statistical robustness of the WTP results, which we summarise below.

- It is standard practice to test the 'internal validity' of WTP data by testing that WTP is driven by theoretically consistent factors such as income and indicators of engagement with heritage. In the pooled high street and civic building samples (where sites within each of the four categories are combined) there is a statistically significant association between WTP and these factors, giving

good confidence in the robustness of the pooled WTP values for benefit transfer.

- There is also some evidence of respondents interpreting the valuation scenario in a different way to intended in these surveys. These kind of information effects and biases are common in stated preference (SP) surveys and the survey attempted to minimise their effects through careful survey design. Despite these design considerations, statistical tests show that those who regularly visit libraries and use their services report a higher WTP to maintain the historic library building in good condition. This aligns with theoretical expectations, that greater familiarity with a heritage place would lead to greater values for its maintenance. However, it is not possible to discount the possibility that people's stated value is at least partially influenced by the use of those services, which, if true, would lead to an inflation of WTP values (since the services themselves provide direct benefits to those users). The same is true of town halls, although a smaller proportion of the sample group had used their services. While the design of the survey instructed respondents to ignore the services provided when stating their maximum WTP, it is impossible to test that some conflation has not occurred. This is always a challenge when valuing 'quasi-market' goods that have both direct user services and indirect spillover benefits to the local place.

- Finally, an important factor that can affect the robustness of CV surveys occurs if respondents are insensitive to the scope of the good being valued. In other words, if someone is presented with a scenario for preserving a single heritage site or one for preserving 100 heritage sites, the amount they are willing to pay would be reasonably expected to differ in magnitude in each case. This would be detected if respondents state a similar WTP in both situations, suggesting that their responses are insensitive to the number of sites being valued. In this study there is some evidence of possible insensitivity to scope, due to the fact that WTP values for the historic character of a high street (which contains many historic buildings) is not significantly higher than WTP values for individual civic buildings. However, it is not 100% clear that this is an insensitivity to scope issue, as it could be that people consider their civic buildings more valuable in isolation – perhaps due to their iconic role within the place-making of the city – than many of the historic buildings in a high street. Follow-up questions may provide supporting evidence, albeit with the familiar lack of certainty about a respondents' complex motivations for being willing to pay. A third of respondents stated that their WTP value is an expression of their pro-heritage beliefs and their broader interest in preserving all heritage in the city, which could lead to some inflation of the WTP estimates. In extreme cases, such respondents could be excluded from the sample. However, given that follow-up questions do not fully explain the

motivations behind WTP, it is not advisable to reduce the sample in this way, as it reduces the predictive power of the benefit transfer tests.

- **For the purpose of benefit transfer, it is recommended that business cases use the more conservative lower bound WTP values. Lower bound WTP is estimated as the lower limit 95% confidence interval around the mean WTP. This is to account for the fact that mean WTP is likely to be inflated by the inclusion of direct use values for those who use the sites for services and possible insensitivity to scope. This means that average WTP may not be the most accurate estimate for external use, so we recommend taking the lower bound WTP for benefit transfer.**

The use of geographical data like the Historic England PointX Asset Register and Ordnance Survey Open Map enables the researcher to incorporate external data on the characteristics of each of the sites surveyed that could potentially explain variation in WTP and therefore affect transfer testing. This analysis provides a major contribution to the benefit transfer literature and with its use of the ever-growing body of geographical open data, will provide much greater transferability of values using function transfer. Table 1-1 summarises the main advantages and disadvantages of the three benefit transfer methods below, outlining our recommendation as to the contexts in which these benefit transfer methods work best.

Table 1-1 Benefit transfer summary and recommendation

		Simple unit transfer	Adjusted unit transfer	Function transfer
Data availability / requirements		No additional data required	Only aggregate data on the adjusted characteristic at policy and study sites required	Transfer function needs to be estimated at study sites; Corresponding data for policy site required to make prediction
	Low	✓	✗	✗
	Medium		✓	✗
	High			✓
Similarity between policy and study sites		High degree of similarity required	Difference in a single characteristic (usually income levels) may be adjusted	Differences in multiple characteristics may be adjusted to produce more context-sensitive benefit transfers
	High	✓	✗	✗
	Medium		✓	✗
	Low			✓
Homogeneity of the **good valued** across study sites		High degree of similarity required	High degree of similarity required; Adjustment usually based on population not site	Differences can be controlled (and their impact measured, provided that site-specific data exists and that there is sufficient heterogeneity

	Simple unit transfer	Adjusted unit transfer	Function transfer
		characteristics (i.e. population income)	between study sites) through transfer function
High	✓	✓	
Low	✕	✕	✓
Homogeneity of the **population characteristics** across study sites	High degree of similarity required	Assumes that heterogeneity between sites is a function of socioeconomic differences in populations. Income differences can be adjusted ex-post	Differences can be controlled (and their impact measured, provided there is sufficient heterogeneity between study sites) through transfer function. High homogeneity will lead to higher transfer errors in function transfer.
High	✓		✕
Medium		✓	
Low			✓
Assumptions required to perform the transfer (as tested by t-tests in benefit transfer testing)	Per person (or household) WTP at the study site is equal to that at the policy site	Per person (or household) WTP scaled by the adjustment variable at the study site is equal to that at the policy site	Transfer function is identical in the study and policy sites
Recommendations			
Policy site is similar to the study site in terms of services offered, size and reach, and characteristics of users/non-users	✓	✕	✕
Policy site different from study sites in terms of a small number of characteristics (particularly income)	✕	✓	✕
Policy site different from study sites in terms of multiple characteristics (whose impact on WTP has been measured)	✕	✕	✓
Transfer functions have low explanatory power	NA	NA	✕

2. Introduction

Overview

- This study develops a set of monetary values (Local Heritage Value Bank) for the 'everyday heritage' sites that people use and experience around them in their local area.
- It applies metrics and methods which are consistent with UK Government evaluation guidance, in line with Historic England's strategies for prioritising HM Treasury Green Book (2018) compliant social and economic research.
- Evidence of the value of local heritage places to the local population corresponds to a wider shift in the heritage sector from a purely assets-based approach to a mixed asset- and area-based approach, where the latter focuses on the role of heritage sites in creating place.
- Willingness to pay (WTP) values elicited in a hypothetical Stated Preference survey represent local residents' valuation of keeping the heritage site in its current good condition for historic high street and civic buildings.
- The Local Heritage Value Bank developed in this study will contribute to the growing evidence base in Government and the wider sector, providing a set of values that can be transferred to comparable heritage sites throughout the country.

Protecting and preserving heritage is a vital concern for the public across England and the UK. Recent reviews have found that ninety-five percent of adults in England thought it is important to look after historic buildings, seventy-three percent had visited a heritage site over twelve months, over 315,000 people were heritage volunteers, and eighty percent of people thought that local heritage makes their area a better place to live.[18] At the same time, a large amount of research in the field of public health and inequalities has been conducted on urban determinants of various aspects of wellbeing. This includes, for example, reviews of theory and evidence on associations between greenspace and health,[19] and the role of built environment interventions in addressing fear of crime and mental wellbeing. [20] Previous research by Historic England has also demonstrated that people who state they live in historic areas have a stronger sense of place to

18 Pennington et al. 2019

19 Nieuwenhuijsen and Khreis 2017

20 Lorenc et al. 2013; Foster et al. 2013

their local area than those who do not, corroborating Historic England's wider place-making strategy.[21]

Despite the prominence of heritage in the physical, social, economic and cultural landscapes of the UK, there remain gaps and limitations in our understanding of how historic places and sites benefit those who live around them, and what these benefits mean in monetary terms. On a practical level, there is a need for evidence of the value that local heritage sites provide to the public which may, when quantified in economic terms following HM Treasury Green Book best practice guidelines,[22] be used to:

- support bringing the value of local heritage places into consideration in business cases, which is of particular importance where business cases are required for heritage sites, but monetary values (e.g. entry fees) do not currently exist;
- mitigate against growing development pressures that may involve risks to local heritage places;
- inform funding decisions regarding maintenance of heritage sites, especially in light of the continued constraints on local authority budgets;
- promote recognition of the value of heritage in place-making among local individuals and economic partnerships.

This study develops a set of monetary values (Local Heritage Value Bank) for the 'everyday heritage' sites that people use and experience around them in their local area using metrics and methods which are consistent with HM Treasury Green Book evaluation guidance, as required by central/local Government. This is in line with Historic England's strategies for prioritising HM Treasury Green Book compliant social and economic research. It also accords with a wider direction of travel in the heritage sector from an assets-based approach to an area-based approach, which shifts from a purely assets-based approach to a **mixed asset- and area-based approach, where the latter focuses on the role of heritage assets in creating place**. This links with central government policy, such as the BEIS Local Industrial Strategy and the What Works Centres for Local Economic Growth. Evidence on the value of heritage in local place-making, place-branding, and the attractiveness of a place to businesses and citizens[23] can contribute to the development of Local Economic Partnerships (LEP) and Local Industrial Strategies. The importance of place, and of the heritage sites with it are part of the competitive advantage of local areas.

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21 Place-making relates to built heritage and its role in the wider the built environment, with strong linkages to planning and extensions into 'place-branding', whereby local communities use heritage assets to promote a place.

22 H. M. Treasury 2018

23 E.g. 'Heritage Counts 2018 – Heritage in Commercial Use' 2018

Evidence on the value of heritage sites can be the differentiator for LEPs, and a unique selling point for local people when describing what is important and valuable about their local place.

This study focuses on three types of local heritage place: 1. The high street, 2. The town library, 3. The town hall.

Historically high streets have formed the cultural centre of towns and cities. They also often contain a high concentration of historic listed buildings, which provide a distinct character and sense of place. Despite being so rooted in our history, high streets in England are facing new challenges and many are struggling to thrive. Many towns and cities across England are experiencing a decline of their traditional high streets, exacerbated by competition from shopping centres and online retailers.[24] The Local Data Company found that 11% of retail premises in the UK were vacant in the second half of 2017.[25] Without a tenant in occupation, there is higher risk of a building falling into disrepair.

Historic civic buildings such as libraries and town/city/guild halls are often the oldest and most iconic buildings in a town centre, designed by renowned local or national architects of the day, and representing sites of important cultural history for the area. However, these buildings can be expensive to maintain, and this is forcing some councils to close them down, moving the public services they provided to cheaper buildings. These new challenges mean that, despite their importance, many historic civic buildings in England fall into disrepair. This can raise particular concerns for communities where the historic civic building has been emblematic of the local area and accessible to the public for a long time.

Willingness to pay (WTP) values elicited in the survey represent local residents' valuation of keeping the heritage site in its current good condition. The survey presents a hypothetical scenario where a local trust would be set up to maintain the historic sites, due to a shortfall in public funding. It collects two WTP values in each survey: one on the value of the historic high street and another about the individual historic civic building within the city.

This research fits into the Department for Digital, Culture, Media and Sport (DCMS) Culture and Heritage Capital Programme (CHC). Culture and heritage sits alongside other forms of capital, as financial, human, social and natural capital, to "recognize the distinctive features of artworks and other cultural goods as capital assets, and to capture the ways in which such assets contribute, in combination with other inputs, to the production of further cultural goods and services".[26] Historic

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24 Other factors identified in public debate as contributing to the high street decline include: slow wage growth in comparison to inflation, rising overhead costs and debt burden, past over-expansion and changing customer preferences (see e.g. Thomas 2018).

25 https://researchbriefings.files.parliament.uk/documents/SN06186/SN06186.pdf

26 Throsby 1999

places provide both a stock of heritage assets which can be preserved for future generations, and a flow of benefits to the people and places around them.

- Throsby[27] outlines how the economic value of heritage can be divided into three identifiable ways in which individuals experience heritage - use, non-use, or as a beneficial externality. The Total Economic Value of a heritage site is made up of all three: a combination of use value (benefits derived from either direct or indirect use of the good being valued, usually including option value associated with the possibility of using the good in future) and non-use value (existence or bequest value associated with knowing that others may benefit from the good). The third type of value that people can experience from heritage derives from the fact that heritage may generate positive spillovers, or externalities. Heritage buildings give rise to a beneficial externality if passers-by gain from observing their aesthetic or historic qualities. This beneficial externality is an important element of the value of heritage to local place-making. Although in principle the economic value of such a benefit could be estimated, in practice it seldom is. This is an important new contribution of this report, and one that can arguably only be captured through asking residents to state their preferred WTP value (i.e. Stated Preference methods). Historic high street and civic building WTP values represent a combined 'use, non-use, and positive spillover values held by local residents' who are familiar with the site (we exclude pure 'non-users' who have not heard of the high street or civic building).[28]
- Historic civic building WTP values combine those who have directly used the library/town hall services, with controls for any difference in the values obtained, but exclude those who have never heard of the building.

This study employs Benefit Transfer (BT) methods which produce WTP values that can be applied to comparable heritage sites without the need for additional new and costly primary data collection, survey design, and analysis. Benefit transfer is the process of taking average WTP values for a category of local heritage (for instance, Pre-industrial high streets or civic buildings) from one research study (such as this one) and transferring it to another high street or civic building, with confidence that it will be a robust representation of the value that people would state for that heritage site if they were asked. It offers a means to provide policy-useful values in a fast and cost-effective way, by taking the estimated average WTP values from sites (study sites) and applying

27 Throsby 2019

28 Familiarity was ascertained using the name of the site.

them to another site (policy site) or transferring the information from the study site to the policy site regarding the relationship between WTP and a number of explanatory variables.

There have been previous attempts to assess the scope of BT techniques in the heritage sector.[29] Simetrica and Nesta's research for the Department for DCMS and the Arts and Humanities Research Council (AHRC) has produced WTP estimates for regional museums, historic townscapes, and cathedrals,[30] with ongoing research looking at cultural festivals, local museums, regional galleries, and theatres. There is also a clear policy demand and sectoral need for robust value estimates for heritage sites and the role they play in place-making.[31]

The Local Heritage Value Bank developed in this study will contribute to the growing evidence base in Government and the wider sector, providing a set of values that can be transferred to comparable sites throughout the country. Underlying this argument is the acknowledgement that monetary values are a very important – though not the only – consideration in the business case evaluations of government, planning departments, and funders. **The research also contributes to the broader debate about the value of local heritage to society.** While there is growing interest in the role of heritage sites in place-making and local economic growth, these are not always pursued in a cohesive way. **We hope that the valuation work outlined in this report can provide an evidence base to catalyse more joined-up thinking about the role of heritage in place-making within national and local Government policy-making.**

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29 Eftec 2005

30 D. Fujiwara et al. 2018; Lawton et al. 2018

31 Crossick and Kaszynska 2016

3. Review of existing literature

Overview

- Review of existing valuation studies of historic high streets, town halls and libraries to:
    - o Inform the design of the Stated Preference survey;
    - o Provide comparison data to assess the realism of the results.
- The majority of previous studies in the literature have focused on the cultural engagement services provided by historic sites, rather than the value of maintaining those sites in good condition.
- No previous studies have assessed the beneficial externalities, or positive spillovers that heritage buildings give rise to passers-by in the local area.

Empirical research eliciting economic values or benefits associated with access, preservation or restoration of heritage sites dates back to the 1980s when the first contingent valuation (CV) studies in the field were conducted.[32] Since then, many studies in the heritage sector have been conducted worldwide investigating a variety of benefits, both tangible and intangible. However, the estimates from these studies are often not easily transferable to the local heritage sites in the UK.

For example, there are many studies in the literature about the value of large or unique heritage sites, such as Stonehenge[33], entire historic cities[34] or iconic cathedrals.[35] These sites would not be comparable to the smaller-scale sites covered in this study.

Different CV studies can also vary in terms of how comprehensively they capture the heritage sites' economic value. This can be analysed within a framework known as Total Economic Value (TEV), which originated in the field of environmental economics. TEV distinguishes between *use value* (benefits derived from either direct or indirect use of the good being valued, usually including option value associated with the possibility of using the good in future) and *non-use value* (existence or bequest value associated with knowing that others may benefit from the good).

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32 For review, see Noonan 2003; Pearce and O'zdemiroglu 2002

33 Maddison and Mourato 2001

34 Lawton et al. 2018

35 Pollicino and Maddison 2001; Lawton et al. 2018

Surveys where the WTP is framed as an entry fee to the heritage site capture only the direct use value component of TEV, e.g. Willis's valuation of Durham cathedral.[36] Other studies, while capturing the full extent of TEV, may restrict attention to a narrowly defined valuation scenario, such as avoiding damage (soiling) from air pollution, e.g. Grosclaude and Soguel's valuation of historical buildings in Neuchatel, Switzerland[37] and Pollicino and Maddison's valuation of Lincoln Cathedral.[38] This is in contrast with our study which provides a comprehensive set of economic values including both the use and non-use components of TEV.

In the case of valuation studies motivated by the need to inform policy decisions regarding specific heritage restoration and/or preservation programmes, the underlying primary data collection is – understandably – focused on the location of the policy intervention. For example, Garrod et al investigate the public acceptability of a revitalisation strategy of the Grainger Town area of Newcastle upon Tyne,[39] whereas Pagiola measures the benefits for residents and tourists of a conservation and improvement program in the historic core of the city of Split in Croatia as part of a World Bank-financed Kastela Bay Cultural Heritage Project.[40] However, as testing for the size of potential error when transferring value estimates to other sites is usually not in scope of these studies, they provide only limited evidence on the suitability of their results for benefit transfer. While primary research focused on the heritage site where a policy intervention is planned typically constitutes the first-best method of obtaining policy relevant evidence, it is also a costly approach that may not be viable in smaller-scale projects. A suitable evidence base in the form of a Value Bank to draw values from would therefore provide an opportunity for such smaller projects to still benefit from rigorous evidence without the need of funding a dedicated data collection and research.

There have been previous attempts to assess the scope of BT techniques in the heritage sector. For example, Eftec undertook CV studies of a number of built heritage sites in the UK[41] for the purposes of BT, aiming to build a bank of values that could be applied to similar heritage sites in the UK.[42] However, this study was limited in that it only provided one site for each cultural category, which restricts the ability to perform transfer error testing within cultural categories. More recent research work of DCMS and AHRC has also demonstrated the appetite within Government for

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36 Willis 1994

37 Grosclaude and Soguel 1994

38 Pollicino and Maddison 2001

39 Garrod et al. 1996

40 Pagiola 2001

41 Denbigh Townscape, Kennet & Avon Canal, Battersea Park, Lincoln Cathedral, Sandal Castle

42 Eftec 2005

cultural valuation work[43] and for benefit transfer research to build a bank of values for cultural sites and institutions.

Historic high streets

A number of existing studies have estimated the WTP for complex heritage goods such as landscapes, townscapes and high streets. In terms of CV studies focused on urban environments, Grosclaude and Soguel[44] find a WTP between $77 and $86 per person per year among residents of Neuchatel, Switzerland, in order to prevent damage to local historic buildings from traffic-caused air pollution (this estimate captures use and non-use value among local residents). Pagiola[45] estimates the WTP for preservation and improvement of the historic core of the city of Split in Croatia. The use and non-use value among local residents found in that study is $168 per person per year. In the UK, Garrod et al[46] asked Newcastle upon Tyne residents how much they would be willing to pay, in extra council taxes, towards the renovation and restoration of buildings in the Grainger Town area, and how they would wish this money to be allocated across different areas of the town. The results of this study demonstrated a WTP of £11.68 per household, with evidence of a strong preference for renewing historic areas and a preference to contribute towards the improvement of the most degraded areas. This is in line with our findings which suggest that WTP for historic buildings tends to decrease with their perceived condition. Previous Simetrica study of historic cities[47] found similar WTP values to preserve the historic buildings from damage associated with climate change in the city (use value of £9.63 per household among city visitors/residents, and non-use value of £6.14 per household among non-visitors/non-residents).[48]

Historic libraries

43 Crossick and Kaszynska 2016

44 Grosclaude and Soguel 1994

45 Pagiola 2001

46 Garrod et al. 1996

47 Lawton et al. 2018

48 CV studies have also been applied to rural landscapes. A meta-analysis conducted by Ciaian and Paloma 2011 shows that the European Union (EU) society's WTP for agricultural landscape varies between €134-201 per hectare, with an average value of €149/ha in 2009. The authors estimate a benefit transfer function based on a selection of stated preference studies (either contingent valuation, or choice experiment) and controlling for a number of study and site characteristics in order to calculate landscape values for different land types, for individual EU member states and for the whole EU. In the UK, Johns et al 2006 use a choice experiment survey to estimate valuations for a number of landscape attributes, including the cultural heritage value of landscape (which captures factors such as visual presence of traditional farm buildings in the landscape, presence of animals, traditional breeds, or traditional farming practices, e.g. shepherding with sheep dogs), across seven severely disadvantaged areas in England. The WTP for a large change in the cultural heritage attribute (from 'rapid decline' to 'much better conservation') found in this study ranges from £0 (statistically not significant) to £22.51 per household per year.

Previous studies of the value of libraries have focused on the reading services provided rather than the historic buildings they are housed in. The British Library (BL) study[49] valued WTP for the library's reading rooms and remote services using a sample of 2,030 users and general public non-users, alongside willingness to accept (WTA) an annual payment in compensation for a scenario where the BL ceased issuing readers' passes but allowed existing readers to sell their pass, and a non-use question using a payment mechanism of raised taxes for the maintenance of reading rooms and other services. The study found a mean direct use WTP for reading room users of £116 a per annum and a higher WTA value of £273 per annum. The general public non-use WTP was much lower at £6.30 per annum year. Direct value amounted to £59 million and indirect value amounted to £304 million. This amounted to Total Economic Value (TEV) of use and non-use at £363 million per annum (£373million 2016 UK prices).[50] Note that the values for the British Library included all reading services as well as the historic building itself. The British Library is also an iconic site of national and international significance. We would therefore expect WTP values to be considerably higher for the British Library than for the local libraries surveyed in this study.

A similar CV approach was applied to Bolton's museum, library and archive services.[51] The survey presented a scenario where funding from the local council would cease, and asked respondents' WTP a donation to support the continuation of the library, archives and museum services. The study captured use and non-use value through a sample of 325 face-to-face and telephone respondents, and WTA monthly compensation to give up the library/archive/museum pass, following the approach in Pung et al.'s British Library study.[52] Mean annual WTP was estimated at £39.96 for library users, and at £21.96 for archive users. Total average use value was calculated as £95.16. For non-users, total WTP was £33.84. The authors estimated that aggregated WTP was £10.4 million, divided between direct value to library users of £4.4 million, archive users as £0.2 million, museum users of £2.8 million, and indirect value of £3 million (£3.1 million 2016 UK prices). Again, these WTP values included all reading services and we would expect WTP values to be considerably higher in the Bolton Library study than for the local libraries surveyed in this study.

A number of large-scale meta-reviews of library valuation studies have been undertaken including Aabø's meta-analysis of 38 cost-benefit studies of public libraries, of which 24 adopted CV approaches.[53] The review aggregated median and mean return on investment at national, state,

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49 Pung et al. 2004

50 We convert foreign currency to GBP at the time the study was published using the relevant Consumer Price Index (CPI), and then convert this amount to present-day prices using annual Retail Price Index inflation (figures based on the RPI as of May 2016. Source: Office for National Statistics).

51 Jura Consultants 2005

52 Pung et al. 2004

53 Aabø 2005

county and individual level. The majority were performed on state level in the USA.[54] Regression analysis on the studies found that CV methods tended to produce lower valuations than market substitute approaches. Kim's meta-review of library CV studies found widely ranging benefit-cost estimates, from $0.84 to $10.33 of benefit per $1 invested.[55] The median result across six CV studies was $3.79 of benefit per $1 invested, compared with a median result across the revealed preference studies of $4.46 of benefit per $1 invested (across nine studies).

In the study mentioned above,[56] Aabø also valued the continuation of the public library system in Norway through a hypothetical scenario of reallocation of public services funding. Half of the 999 sample were asked to state maximum WTP to continue their local public library at present activity and service levels; the other half stated their minimum WTA compensation for library closure. Aggregate social value is estimated within the range of 400-2,000 NOK/household. Elsewhere, Hájek and Stejskal surveyed 2,200 Municipal Library of Prague users (although the results of the survey were undermined by having an unrepresentative sample).[57] They found an average WTP of 642CZK, but higher WTA the loss of the library (4,000CZK). Morris et al. valued WTP for individual book loans of 550 library users across four UK libraries using a hypothetical scenario book lending services would no longer be available.[58] Mean WTP was around £0.62 per fiction book. Aggregate WTP calculations showed that library book borrowers valued the lending service at £814 million (£836 million UK prices).

Finally, Fujiwara et al. estimated the value of engagement in library services through a large contingent valuation study of around 2,000 library users and non-users.[59] Average willingness to pay (WTP) to maintain current library services (above the core book-lending and computer/internet services) among library users in England is £19.51 per annum and £10.31 per annum for non-users. This provides a combined annual WTP for these local library services of £723.4million. This is the first study to disaggregate WTP values by the services that respondents report having used. Those using health services, attending lectures and using library space for socialising are willing to pay more on average to maintain all services at their local library. Library use is also positively associated with subjective wellbeing, suggesting that libraries have an important role in users' quality of life, which provides supporting evidence that the values for public libraries can be interpreted as reflecting primary benefits stemming from welfare changes associated with library engagement.

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54 e.g., Griffiths et al., 2004; Griffiths et al., 2006; McClure et al. 2001

55 Kim 2011

56 Aabø 2005

57 Hájek and Stejskal 2014

58 Morris et al. 2002

59 Daniel Fujiwara et al. 2017

It is important to note that public buildings like libraries and town halls, which provide public services like reading and civic registrations are multi-faceted in the values they provide. People may hold one set of values for the public services provided by libraries (or other civic building) and another set of values for the historic character of that site and its ongoing maintenance. Both sets of values would require the design of different valuation scenarios to elicit WTP for each aspect. The focus of the current study is on the value of heritage. However, it is impossible to avoid some interactions between the services that people use and the historic character of the building from which they are delivered. In the present study we will seek to capture some of these interactions through follow up questions. However, even with the best survey design, there will always be some uncertainty around what factors are most motivating respondents' WTP. Future research may aim to explore these motivations further by designing a Discrete Choice Experiment survey which defines each of these attributes and asks respondents to trade-off the different and interacting benefits of services provided and the characteristics of the building in which they are provided. To date this has not been attempted in the literature, and it was outside of the scope of the present study, which aimed to elicit WTP values for maintaining local heritage sites in good condition and testing the robustness of these values for transfer to other comparable heritage sites across the country.

Historic town halls

Our review found few examples of CV studies on historic town/village halls, but there are a number of studies on other civic buildings like museums or theatres. However, these do not relate to maintenance of the historic character of the sites, but rather the services they offer for cultural engagement. For example, Santagata and Signorello find a WTP for maintaining the cultural programme offered by Napoli Musei Aperti of $11 per household per year among museum users, and $4 among non-users.[60] Choi et al. use a choice modelling approach to value marginal changes in several attributes of the Old Parliament House in Canberra, Australia, which houses the Museum of Australian Democracy.[61] The attributes they find to have a positive value include 'extending the period of temporary exhibitions' and 'hosting events.' This means that the present study is the first to elicit the local population's WTP to maintain their local historic town halls in good condition.

In sum, the majority of previous studies in the literature have focused on the cultural engagement services that are provided by historic sites, rather than the value of maintaining those sites in good condition. Furthermore, no previous studies have assessed the beneficial externalities, or positive

60 Santagata and Signorello 2000

61 Choi et al. 2010

spillovers that heritage buildings provide for passers-by in the local area. This research will address these two elements of the value of heritage to local place-making.

4. Data and methodology

- The objective of this study was to survey four heritage sites from each category, and then combine the average WTP values for each site into a 'pooled WTP' value which can then be reliably transferred to comparable high streets or civic buildings in England.

- A survey of residents (current residents or those who has been resident in the past 3 years) in eight selected cities was designed to collect Willingness to Pay (WTP) for their local heritage places.

- Data for this study was collected using a combination of online questionnaires and face to face (F2F) interviews.

- The aim of the survey was to produce a Local Heritage Value Bank of estimates of WTP values for different categories of heritage, with four sites in each.

  o **Historic high streets** in four Industrial-era cities: Bolton; Huddersfield; Hull; Bristol

  o **Historic high streets** in Pre-industrial cities: Exeter; Lincoln; Norwich; York

  o **Town halls:** Bolton Town Hall; Exeter City Council (Guildhall); Huddersfield Town Hall; Norwich City Hall

  o **Central libraries**: Bristol Central Library; Hull Central Library; Lincoln Central Library; York Central Library.

- Average WTP values for each site are 'pooled' into a combined sample which can then be transferred with greater confidence that it is representative of a historic place of the type that is being valued in a business case.

- Statistical tests are run on the WTP values to conclude with confidence that the WTP values can be reliably 'transferred' to other sites. This process is called 'benefit transfer' and the statistical analysis tests for 'transfer error'.

4.1   Sampling

The data for this study was collected using a combination of online questionnaires and face to face (F2F) interviews. Online data was collected between 10th July – 26th August 2019. Face to face interviews took place over the period 5th August – 12th September 2019. In total, a sample of n=1641 responses were collected across the online (n=661) and F2F (n=980) survey modes.

4.1.1   Online sample

Online survey sampling was performed via a panel of pre-registered survey respondents, maintained by the survey company Toluna.[62] Within the panel respondents are randomly selected

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62 https://www.toluna-group.com/en-gb

for surveys to help ensure that they are representative of a random sample of the relevant population (residents of England, aged 16+). Moreover, in order to mitigate category overuse and other forms of awareness bias, Toluna can exclude any panellist from a client's survey by topic of survey recently taken and frequency of participation.

Online surveys are common in large scale surveys in many areas of research, due to their speed, cost-effectiveness and the fact that the large majority of the population is now online in countries like the UK. Also, online surveys reduce social desirability bias and yea-saying (where respondents acquiesce to survey questions in a way that does not represent their true preferences or experiences), can be easily tailored to individual respondents and make it easier to present visual information. However, despite these sampling measures, additional selection biases may arise when sampling respondents from online panels. For example, people can choose first whether or not to be part of a (pre-recruited) Internet panel and second whether they wish to participate in a particular survey, thereby introducing two elements of potential selection bias: non-response, where some groups are less likely to respond, and representation, where some groups are more likely to be over/under represented in the sample.[63] If non-response/representation-related bias exists, this makes it more problematic to extrapolate value estimates and make valid inferences directly from the sample to the wider population, since the sample selection issues could lead to downward biased WTP estimates.[64] Existing research on the reliability of responses from professional survey-takers is mixed.[65] Currently, most stated preference surveys are conducted online, and it is widely thought that on balance the pros outweigh the cons.

4.1.2   Face to face sample

Face to face survey sampling was performed by the interview company Watermelon.[66] In each of the eight cities in scope of this study, the interviewers were located on the street where the civic building of interest was sited. Interviewer protocols ensured that respondents were chosen randomly (1 in every 3 passers-by were approached).

4.2   Site scoping

Key characteristics for consideration in site scoping were developed through exploration of the Historic England PointX Asset Register GIS database on the following characteristics:

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63 Bonnichsen and Ladenburg 2009

64 Bonnichsen and Ladenburg show that males, older respondents and those without children are more likely to answer, while those households in the highest income group are less likely to answer. The consequence is that WTP is underestimated if selection is not taken into account.

65 Callegaro et al. 2014

66 www.watermelonresearch.com/

- Overall age and character (pre-industrial/industrial-era): Allowing buildings to be separated into those built before and after 1800
- Size of city
- Listed buildings: Number and proportional coverage

while ensuring that a sufficient sample size was available through online and face to face data collection.

Pre-industrial and industrial-era towns and cities

A primary consideration was to ensure we had separate values for high streets in cities which are broadly classified as Pre-industrial (towns/cities which contain some architecture dated before the nineteenth century) or Industrial-era (those containing no or few buildings aged before 1800, and predominantly constructed in the industrial era of the nineteenth century). We acknowledge that this is a non-exclusive classification, given that 'Pre-industrial' cities also contain a large number of sites dated post-1800, and that many older buildings will have been added to over different ages. However, for the purposes of benefit transfer, we hypothesize that the age of the heritage contained within the city will be an important aspect of the character of the high street, and that this is one factor that drives local values.

Size

In order to ensure the size of the city and high street was kept consistent, we aimed to restrict the selection to medium sized cities, defined as having a population of more than 100,000 and less than 4,000[67] as larger cities tend to have a smaller proportion of historic high streets and a larger proportion of modern high streets. Regional mix – to ensure that towns/cities from different parts of the country, with their distinct socioeconomic composition and architectural character – was also considered in the scoping stage. However, in practice, it was necessary to sample more northern towns to obtain the necessary number of Industrial-era high streets. This should be taken into account and caution applied if attempting to transfer Industrial-era high street WTP to Industrial-era towns in the south of England.

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67 Note that Bristol has a population of 460,000 but was included because of its industrial-era architecture and to include some representation of southern towns in the sample.

SIMETRICA **Jacobs**

Mid-size city, Pre-industrial era
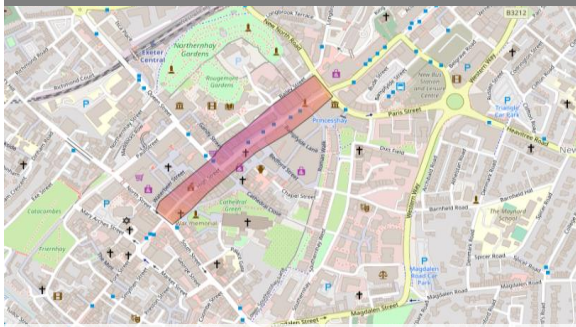
Exeter (South of England)
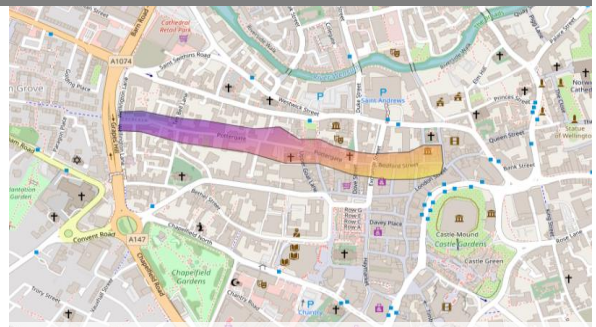
Norwich (East of England)

Lincoln (Midlands)
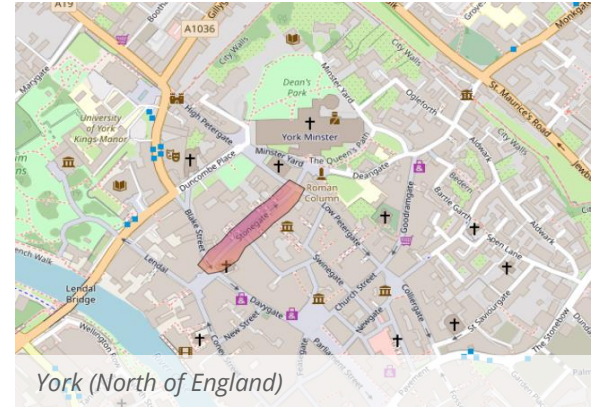
York (North of England)

Mid-size city, Industrial era
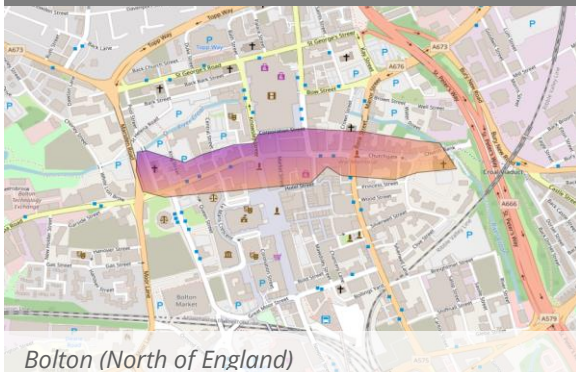
Bolton (North of England)
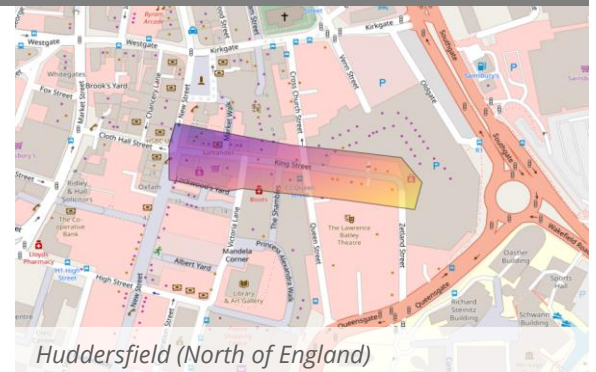
Huddersfield (North of England)
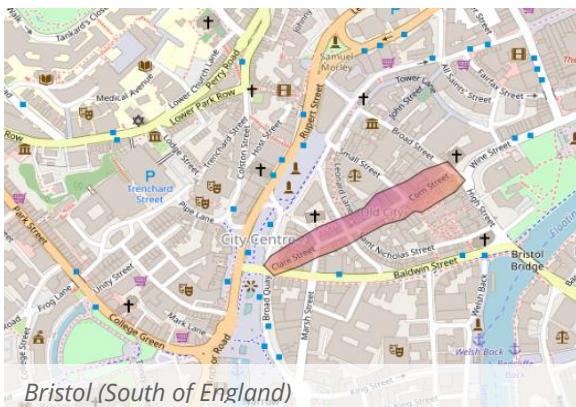
Bristol (South of England)
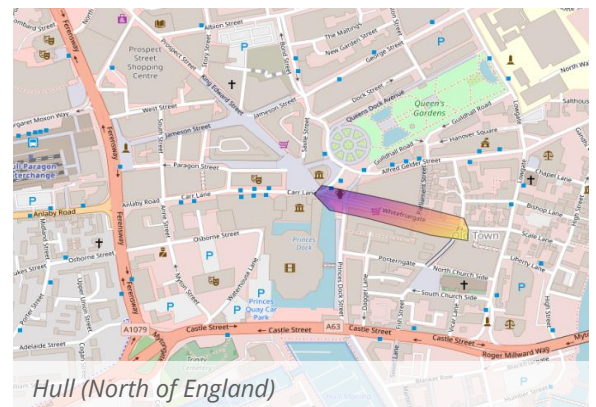
Hull (North of England)

Listed buildings

The survey was designed to ask two WTP questions; first for the high street and second for a civic building (library or town hall). Each city therefore needed to have at least one listed town hall or library building. In order ensure the value for each type of civic building could be used for benefit transfer, we needed a minimum of four cities with each type of listed civic building.[68]

Analysis of the Historic England PointX Asset Register data enabled more rigorous classification and screening of appropriate sites to inform survey design. The data enabled analysis of the concentration of listed buildings on each street as part of site scoping. Additionally, the classifications of the listed buildings (e.g. pub, café, shop, library etc) allowed us to ensure the high streets across cities were similar in terms of the types of services offered from the historic buildings.

Sample size

Power calculations are statistical tests which inform the researcher of the minimum sample size required to test their hypothesis. These tests showed that a sample of n=170 for each site would fulfil sample size requirements to perform full benefit transfer testing on two different types of high street / civic building WTP, to ensure robust sample size requirements[69] which are eligible for benefit transfer testing.[70] The survey strategy included contingency plans for collecting additional data via face to face data collection on site, to mitigate the risk that data collection would end with insufficient sample for benefit transfer testing. Table 4-1 shows that in the majority of cases the high street WTP sample was obtained through on-site data collection by interviewers located in the cities (40% for Pre-industrial cities and 42% for Industrial-era cities). In the case of two cities (as detailed in Appendix Figure 8-1, left panel) a higher proportion were obtained online. This was likely due to the larger populations of these cities, which increased the number of their residents present in the online panel (Norwich 59% and Bristol 61% online). This tended to carry over into the civic building samples (see Appendix Figure 8-1, right panel). Nevertheless, testing for survey mode effects, we found no significant difference in mean WTP between online and F2F samples (see Appendix Table 8-19), so it was not deemed necessary to adjust results for weighting of online to F2F responses.

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68 The larger the set of study sites, the lower the risk of measurement error related to the possible selection of a single inaccurate or inappropriate source study, with a general 'rule of three' minimum. For detailed discussion of the advantages and disadvantages of the unit value and function transfer approaches see Johnston et al. 2015.

69 Pearce and O'zdemiroglu 2002

70 Lawton et al. 2018; Johnston et al. 2015; Eftec 2009

In order to ensure that the study results are representative of the wider population (the eight cities' residents aged 16 and over), we apply weights correcting for selected socio-demographic characteristics. In particular, our sample is more female (58% vs 51%) than the total population in the eight cities, and in some cities the disparities between sample and population are greater. As both these characteristics are known as likely drivers of WTP, any imbalance in our sample could result in biased value estimates (e.g. women tend to report lower WTP, so without correcting for over-representation of women in our sample we might underestimate the true valuation for preservation of local heritage).[71]

The sample size was below the required n=170 in three cases (Huddersfield King Street and Town Hall, and York Central Library). In the case of Huddersfield, this was largely driven by the low online representation of residents from this city in the online panel (with lower socioeconomic status potentially being associated with lower internet access). With the caveat that the sample size for those sites may reduce the representativeness of the results, we include them in the analysis for comparison.

Table 4-1 Sample size and survey type by city type and civic building type

Sample	High streets			Civic buildings		
Type	Pre-industrial	Industrial-era	Total	Town hall	Library	Total
Online	40.4% (313/774)	42.0% (307/731)	41.2% (620/1505)	37.3% (274/734)	41.0% (300/732)	39.2% (574/1466)
F2F	59.6% (461/774)	58.0% (424/731)	58.8% (885/1505)	62.7% (460/734)	59.0% (432/732)	60.8% (892/1466)

4.3 Survey design

A state-of-the-art survey of local residents (now or in the past 3 years) was designed for each of the eight cities listed above to collect willingness to pay for their local heritage places. The survey was designed to collect transferable WTP values for up to four heritage sites, to produce estimates

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71 Weights to account for these differences in representation were calculated using the following procedure: First, within each city all of the observations were sorted into their appropriate gender/age group buckets. Next, we counted the number of sample observations in each bucket. Finally, for each observation within a given bucket, the weight was given as the share of that bucket in the target population divided by the number of sample observations in that bucket. For example, consider the bucket of women aged 35-39 who provided a valid high street WTP. Our sample had 70 observations in this bucket, and the proportion of that bucket in the target population was 4%. The weight applied to each high street WTP observation by a woman aged 35-39 was therefore (4/70) =0.057%, so that the sum of weights within that bucket equalled the population share.

of WTP values for different categories of heritage. The study provides a bank or database of values for:

1. Historic high streets in Pre-industrial cities
2. Historic high streets in Industrial-era cities
3. Town halls
4. Central libraries

The survey asked two WTP questions, one on the value of the historic high street and another about an individual historic civic building within the city.

- High street WTP values represent a combined 'use, non-use, and spillover values held by local people', in that we only survey those who have lived in the high street in the past 3 years and who are familiar with the site, as presented to them through the name of the site.
- This is also true in the case of town halls, where WTP values represent combined 'use, non-use and spillover values held by local people', since all can passively experience the sites from the outside (i.e. they value their place in the townscape), while some may also have used the town hall directly (e.g. for weddings or work).
- In the case of libraries, some respondents had directly used the library in the past 12 months, while others experienced it only indirectly within their local place. We distinguish between those who regularly use the library, i.e. more than once a month (21%) and those who do not. We would expect regular library users to have significantly higher WTP, which is confirmed by the sensitivity analysis reported in Appendix Table 8-17. The approach we adopt in the remaining analysis to account for the effects of library use frequency is to combine library users and non-users in the sample and control for any difference in the values obtained.

The survey design enabled collection of WTP values for two sites (one historic high street and one historic civic building) in the same survey. This provided at least two valuation estimates per survey, maximising the policy usefulness of the sample. Each time the respondents were reminded that their payment was completely independent to any previous amounts they might have paid. To avoid potential biases introduced through order effects, the order in which the high street or civic building question is asked was randomised.

4.4   Respondent pre-screening and exclusions

Online surveys included filtering at the start of the survey that asked the respondent for the region where they live and then presented the cities in that region, asking if they had lived there in the past three years. This set up was designed to avoid respondents replying to survey questions in

an unconsidered way that does not represent their true preferences or experiences. If the respondent selected any of the eight cities of interest to our study, they proceed into the survey. Face to face surveys were specific to the city in which the interviewer was based. Respondents were excluded if they had not lived in the city for the past three years.

Respondents were screened out of the local high street WTP question if they were not familiar with the high street (n=46) or have not visited the high street in the past three years (n=20). They were screened out of the civic building WTP question if they have never heard of the building (Town hall n=141; Library n=155). This helps to ensure that the sample is composed of only those classed as 'local users' because they are aware of the presence of the historic site in their local area and can have benefited from its positive spillover effects.

The final sample size excludes a number of responses for which key information necessary for further analysis was missing, e.g. those that provided no valid WTP answers (either missing or non-monetary responses) for either of the historic high street and the civic building (n=100) or those with missing age and/or gender characteristics required for weighting (n=12). In addition to that – as explained in detail in the Appendix – for quality assurance purposes we also exclude respondents who provided logically inconsistent or unrealistic answers, such as:

- Those who completed the survey in an unrealistically fast time (n=14). Removal of so-called 'speedsters' is recommended practice in CV analysis. A threshold time of 3.5 minutes was set as the minimum period in which all of the information provided in the survey could realistically be read and used to make informed preference decisions.[72]
- Those who provided a postcode that did not match the city of which they claimed to be residents (n=86).
- Those who stated that they would not pay the sum of declared WTP in reality (n=15), as this is an indicator that the valuation scenarios were not answered in a realistic way.

While the exclusions above lead to some sample loss, it is considered preferable to have a more robust set of responses that provides greater confidence that WTP values are produced in a way that most accurately mirrors welfare-consistent decisions. We must also acknowledge that the exclusion of these respondents could introduce some bias into the results if they result in the systematic exclusion of certain types of respondents from the sample. We perform ex-post

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72 Average survey completion time in online mode was approximately 22 minutes, with the median of around 12 minutes. In face to face mode, the average was much higher (89 minutes), but the median was comparable (16 minutes) to the online mode. This indicates that the majority of respondents completed the survey within the expected timeframe, while the average completion times were likely driven upwards by a small number of outlier observations where either the respondents were completing the survey over multiple online sessions or the face to face interviews' completion times was recorded with a delay, possibly due to technical/connectivity issues.

analysis (logistic regression) which finds no significant selection effects within the samples of exclusions.

4.5 Valuation scenario 1: Willingness to pay for 'local heritage'

Good valued: Maintenance and preservation of historic core of high street in good condition.

Exclusion scenario: High streets form the cultural centre of towns and cities. They often contain a high concentration of historic listed buildings, which provide a distinct character and sense of place. The challenge of maintaining historic high streets in good condition is increasingly difficult, and cannot be solved by councils, private owners, or government agencies by themselves. In the hypothetical scenario, continued enjoyment of the current condition of the historic high street is dependent on the survey respondent being willing to pay to maintain it in good condition.

Contingent scenario: Respondents are asked to imagine a situation where due to the current financial conditions, there is a shortfall in public funding to conserve and preserve the historic character of the high street in good condition. If additional funding cannot be secured, then the historic character of the high street would be at risk of deterioration, with a greater risk of damage and emergency repairs. To protect the historic character of the high street from degradation and permanent damage, a fund is proposed, set up by a local trust to maintain the historic character of the high street in good condition, supported by voluntary donations. The use of an independent fund in the scenario is designed to overcome potential strategic biases against paying additional taxes to local or central Government.

To avoid protest responses, respondents are reminded that all of the funds raised would be used for maintaining and preserving the historic character of the high street on a continuous basis (i.e. if payments stopped at any point in the future, the historic character of the high street would no longer be maintained in good condition), and that the money would work to preserve the historic character of the high street only, and not of the rest of the city centre

4.6 Valuation scenario 2: Willingness to pay for 'local heritage' of civic building in a town or city

Good valued: Maintenance and preservation of historic civic building in good condition.

Exclusion scenario: Historic town hall buildings can be expensive to maintain, and the current financial situation means that some historic buildings can no longer be maintained within current local authority or conservation area budgets. If continued funding for historic civic buildings cannot be secured, then the buildings would deteriorate, and the exterior of the building would be at risk of major damage. In the hypothetical scenario, continued enjoyment of the current condition of the historic high street is dependent on their being willing to pay to maintain it in good condition.

Contingent scenario: The same valuation scenario is presented for high streets and civic buildings (WTP to a local trust to maintain the historic building in good condition, supported by voluntary donations).

4.7 Analysis: WTP results

The valuation question asked what was the "maximum you and your household would be willing to pay as an annual donation to a local trust to maintain the historic site in good condition".[73] All WTP values were elicited through a payment card elicitation mechanism. This means that respondents' stated values were a lower bound of their actual willingness to pay because the actual amount they were willing to pay would lie somewhere between the amount they chose 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.[74] Following standard practice, all those who responded that they were not willing to pay in principle were coded as £0 bids.

We calculate mean and median WTP values, as well as a lower bound WTP is estimated as the lower limit 95% confidence interval around the mean WTP. We conducted theoretical validity tests using multivariate regressions to assess whether the main drivers of WTP matched what is already known about the determinants of economic value [75] and prior expectations around cultural engagement and past usage. Regression analysis tests the statistical association between our dependent variable (WTP) and a set of explanatory variables (factors that may make people more or less likely to state a higher WTP value). It helps us to understand if WTP is driven by those factors which have been found to drive WTP in previous studies. For example, individuals with higher income and those with an interest in culture would be expected to have on average higher WTP. Full technical results of regression analysis are provided in Appendix Table 8-8 and Table 8-9.

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73 The survey also included follow up questions to verify whether their stated WTP was for their household or for them as an individual. This allowed us to confirm that respondents were interpreting the valuation scenario correctly. If we consider only those who report household size of two or more, responses to this follow-up question show that 34% were thinking of themselves as an individual, rather than their household, when stating the WTP. It may be that their WTP would have been higher if they were stating it for their household. However, without further understanding of how they are calculating their stated WTP, we recommend aggregating these values to the household level, i.e. their value as an individual would count as a household value, rather than being grossed up by household size. This makes the aggregation to households in the local area slightly more conservative, which we consider appropriate given that this would counteract the upward biases that are known to act on CV surveys, such as hypothetical bias, which we are only able to minimise in this survey, as well as the exclusion of 'pure non-users' who may hold lower values for the site on average.

74 Bateman et al. 2002

75 Including the wide literature, e.g. Bateman et al. 2002

4.8   Analysis: Benefit transfer

Benefit transfer (BT) is the exercise of transposing 'primary' research findings on WTP values from one study site to another. It offers a means to provide policy-useful values in a fast and cost-effective way, by taking the estimated average WTP values from surveyed sites (study sites) and applying them to another site (policy or business case site) in their simple form, or by transferring the information from the study site to the policy site as a function between WTP and a number of explanatory variables (function transfer).[76]

Desvousges et al.[77] developed the first set of tests for analysis of the validity of benefit transfer. Eftec[78] provides a useful checklist for the design of a primary study with the aim of undertaking value transfer in the future including consideration of:

  i.   Similarity of the policy good and study good;
  ii.   Similarity of the change in provision of the policy good and study good;
  iii.   Similarity of the sites where the policy good and study good are found;
  iv.   Similarity of the policy good and study good affected populations;
  v.   Similarity of the policy good and study good market constructs; and
  vi.   Similarity of the number and quality of substitutes for the policy good and study good.
  vii.   Primary valuation study tests and presents robust results.

There are three broad approaches to benefit transfer in the literature.[79] The first is based on a transfer of a known benefit (or another aggregate of benefits) from a study site(s) to a policy site. The second is based on the transfer of a valuation function, which calibrates the value being transferred using the physical and demographics characteristics of the policy site. This can be done through an adjustment of the unit value by income or through a more advanced model using a set of predictors. Finally, a third approach known as meta-analytic value function transfer uses a value function estimated from multiple study results, together with information on parameter values for the policy site, to estimate policy site values. The value function therefore does not come from a single study but from a collection of studies. This allows the value function to include greater variation in both site characteristics (e.g. socio-economic and physical attributes) and study characteristics (e.g. valuation method) that cannot be generated from a single primary valuation

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76 Brouwer 2000; Eftec 2009

77 W. H. Desvousges et al. 1998

78 Eftec 2009

79 Brouwer 2000

study.[80] However, this approach requires more extensive data and more pre-existing studies. We do not expand on the meta-analytic method further as it is not applied in this paper.

Function transfer allows us to explore:

- Effects of the underlying differences between sites (e.g. condition of listed buildings, historic character of the area) on WTP values.
- Influence of population demographics on WTP values. The purpose of these adjustments is to tailor the WTP values to the specifics of the local population (e.g. gender, age, income, education level, etc.).
- Influence of visit frequency/usage of the site.
- External data on location characteristics, e.g. number of listed buildings (Grade I and II*) in the high street / city, income inequality within the city (as measured by the Gini coefficient), etc. However, we note that because of the small number of cities included in the sample and the fact that the external location characteristics remain constant across all observations within the same city, the variation of these characteristics within the sample is not likely to be sufficient to allow for precise estimation of their effect (if any) on WTP.

A full technical explanation of transfer tests used in this report is provided in the DCMS Value of Culture benefit transfer report.[81] For ease of reference, the relevant sections from that report are included in Appendix B. Benefit transfer methodology and an excerpt from that report outlining the rationale behind our choice of acceptable levels of benefit transfer errors is provided below.

Any transfer of WTP values between different sites will incur some degree of transfer error. 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.[82] Here, we compare estimates of transfer error to established ranges within the literature.[83] Ready and Navrud[84] 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 errors as high as 100-200%, particularly when involving complex goods. For the purpose of testing, we apply a threshold of maximum 40% transfer error to all individual transfer errors.

80 Johnston et al. 2015

81 D. Fujiwara et al. 2018, secs 2.5.2; 2.5.3

82 Brookshire and Neill 1992a; Desvouges et al. 1992a

83 Susana Mourato et al. 2014; Navrud and Ready 2007

84 Ready and Navrud 2006

The use of geographical data like the Historic England PointX Asset Register and Ordnance Survey Open Map allows us to incorporate further external data on the characteristics of each of the sites surveyed that could potentially explain variation in WTP and therefore affect transfer testing. These data include the number and density of listed buildings within the high street / city, types of businesses represented on the high street, listing grade of the analysed civic building (town hall or library), etc. Demographic differences may explain some of the variation in WTP, however, they omit key information about the condition of the sites valued. This analysis will provide a major contribution to the benefit transfer literature and with its use of the ever-growing body of geographical open data, will provide much greater transferability of values using function transfer. Again, however, we note that the number of area-specific variables that could be incorporated in a function transfer is limited by the number of study sites included in the regression, because the effect of any given characteristic on WTP can only be identified if there is sufficient variation of the characteristic within the sample.

5.   Results

Willingness to pay results

- This study estimates average WTP values for two types of high streets: Those based in Pre-industrial revolution era (pre 1800) cities (Pre-industrial), and post 1800 (Industrial-era) cities. These were:
    - **The WTP estimate is £7.80 to maintain the historic character of Pre-industrial high streets in good condition per household per year.** This is based on a pooled dataset of WTP values for four Pre-industrial high streets. The average WTP value for Pre-industrial high streets is £9.28.
    - **The WTP estimate is £6.31 to maintain the historic character of Industrial-era high streets in good condition per household per year**. This is based on a pooled dataset of WTP values for four Industrial-era high streets. The average WTP value for Industrial-era high streets is £8.51.
- This study also estimates average WTP values for two types of historic civic buildings: town halls and public libraries:
    - **The WTP estimate is £5.73 to maintain the historic character of town halls in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic town halls. The average WTP value for the four pooled town halls is £7.29.
    - **The WTP estimate is £7.67 to maintain the historic character of libraries in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic libraries. The average WTP value for the four pooled libraries is £9.79.

In all cases 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. For the purposes of realism when transferring to external business cases, it is recommended to take this lower bound to correct for the features of the hypothetical survey.

Benefit transfer testing of the heritage sites surveyed in this study finds that:

- **Pre-industrial high streets and historic libraries WTP values** can be transferred to comparable historic sites across the country with acceptably low risk of introducing transfer error.

- For **town halls**, acceptable levels of transfer error are achieved only with adjustment to the income differentials between towns (adjusted transfer method). These values should be transferred only with consideration of the income differences between the study town hall sites and the business case site.
- Even more caution should be applied to **Industrial-era high streets**, where transfer errors were outside of the acceptable level with all transfer methods. We recommend that Industrial-era high street WTP should not be transferred to other sites, as the WTP values varied too much between the four sites surveyed to provide a robust average WTP value that can be considered representative of other Industrial-era high streets in the country. We recommend that these WTP values be seen only as indicative of the values that people hold for these four particular Industrial-era high streets, and not for Industrial-era high streets as a whole.

5.1   Pilot Survey

We conducted a pilot survey on 20th June 2019 using a quota-based sample of 51 online panel respondents who were current or recent (within the past 3 years) residents of the cities. Debrief questions were included to calibrate payment card amounts and identify potential problem areas in survey understanding, design, and flow prior to the final survey going into the field. The pilot was also designed to establish the current condition of the sites which informed the design of the valuation scenario to either elicit peoples' WTP to maintain their local heritage in good condition, or WTP to improve sites which are currently in poor condition. The majority of respondents indicated that the heritage sites were currently in a fair or good condition, confirming that the appropriate heritage good to value was that of maintaining a site in a good/fair condition.

The majority of respondents (78%) found the pilot survey to be an acceptable length and low in difficulty (98% found it okay, a little easy, or very easy) and 84% thought the survey provided sufficient information on the survey purpose and aims. From the pilot survey results, no changes to payment cards or questions were deemed necessary. The pilot was thereby performed under identical conditions to the final survey; however, a face-to-face version of the survey was created to increase the final sample size through interviews in the field.

5.2   Main Results

- This study estimates average WTP values for two types of high streets: Those based in Pre-industrial revolution era (pre 1800) cities (Pre-industrial), and post 1800 (Industrial-era) cities. These were:
  - o **The WTP estimate is £7.80 to maintain the historic character of Pre-industrial high streets in good condition per household per year.** This is based on a pooled dataset of WTP values for four Pre-industrial high streets. The average WTP value for Pre-industrial high streets is £9.28.
  - o **The WTP estimate is £6.31 to maintain the historic character of Industrial-era high streets in good condition per household per year**. This is based on a pooled dataset of WTP values for four Industrial-era high streets. The average WTP value for Industrial-era high streets is £8.51.
- This study also estimates average WTP values for two types of historic civic buildings: town halls and public libraries:
  - o **The WTP estimate is £5.73 to maintain the historic character of town halls in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic town halls. The average WTP value for the four pooled town halls is £7.29.
  - o **The WTP estimate is £7.67 to maintain the historic character of libraries in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic libraries. The average WTP value for the four pooled libraries is £9.79.

5.2.1   Socio-demographics

Survey sampling was designed to elicit the views of local residents (those who had lived in the city in the past three years) about their local heritage. This assumes that the survey samples were representative of the population of the cities. Table 5-1 shows that the 8 city samples differ in terms of key demographics like gender and average age. To ensure representativeness of the actual populations of these cities, throughout the subsequent analysis we weight the samples based on adult city resident data from the 2011 census.

The city samples also differ by socioeconomic characteristics, with average annual household income higher in Bristol (£37,156) and Norwich (£34,970) and lowest in Hull (£22,750), Huddersfield (£23,341) and Bolton (£24,759). Huddersfield also has the lowest levels of University (degree or above) level education (18%), followed by Bolton (19%), with Bristol having the highest (49%). Bolton and Hull have the lowest levels of employment (42% and 44% respectively). These results suggest that the historic sites selected sit in populations that differ considerably in socioeconomic

status. This may be expected to drive WTP values, since income is a strong theoretical driver of WTP.[85] This will be explored in the benefit transfer tests in Section 5.3.

Table 5-1 Socio-demographic characteristics - unweighted

	Bolton	Bristol	Exeter	Hudders-field	Hull	Lincoln	Norwich	York
Female: % (n/N)	50.5% (103/204)	61.7% (137/222)	64.5% (138/214)	53.1% (93/175)	56.2% (118/210)	60.7% (139/229)	57.8% (118/204)	54.6% (100/183)
Age: mean (se)	48 (1.28)	43 (1.04)	50 (1.25)	47 (1.29)	48 (1.14)	46 (1.11)	46 (1.19)	47 (1.29)
Household annual income (£): mean (se)	£24,759 (1182.24)	£37,156 (2062.04)	£28,119 (2227.83)	£23,341 (1411.29)	£22,750 (1210.50)	£30,181 (1637.20)	£34,970 (1780.43)	£31,846 (2021.53)
Has dependent children under 16 years: % (n/N)	28.6% (58/203)	30.5% (67/220)	19.6% (42/214)	34.9% (61/175)	25.5% (53/208)	27.1% (62/229)	25.1% (51/203)	31.7% (58/183)
Married/ with partner: % (n/N)	32.0% (65/203)	34.1% (74/217)	38.3% (79/206)	45.3% (78/172)	33.8% (70/207)	48.7% (111/228)	44.3% (89/201)	43.4% (79/182)
University education % (n/N)	19.2% (39/203)	48.6% (107/220)	39.6% (84/212)	18.2% (31/170)	28.0% (58/207)	32.7% (74/226)	37.4% (76/203)	43.7% (80/183)
In employment (full-time, part-time, self-employed): % (n/N)	42.2% (86/204)	67.9% (150/221)	48.6% (101/208)	59.5% (103/173)	43.8% (91/208)	61.4% (140/228)	63.5% (129/203)	58.2% (106/182)
Current resident of city: % (n/N)	99.0% (202/204)	98.2% (218/222)	93.0% (199/214)	97.7% (171/175)	96.2% (202/210)	93.9% (215/229)	95.1% (194/204)	96.7% (177/183)

Notes: Sample sizes are larger than either the high street sample or the civic building sample in isolation, because they include all respondents who provided at least one valid WTP response (either for the high street or for the civil building, or both). "Current resident of city" refers to people who currently live in the respective city as opposed to people who have lived in the respective city in the past but no longer live there. Weighted demographics reported in Appendix Table 8-2 and Table 8-3.

> *In all subsequent tables in Section 5, we report only weighted figures (using either high street weights or civic building weights, as appropriate for the analysed sample).*

5.2.2   General pro-heritage attitudes

Just under half of the analysed survey respondents expressed preferences for visiting and supporting historic buildings and areas which are perceived or identified as 'heritage', in terms of indicators of engagement and pro-heritage attitudes.

Across seven of the eight cities, around 40% of the population had visited a historic building (non-religious) in the last 12 months, with a slightly lower number in the case of Hull (33%). Just over a third of the population would prioritise public spending on arts or heritage as one of their top five areas where they think public finding should be directed. A very high proportion (around 90%)

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85 Bateman et al. 2002

agreed or strongly agreed that historic buildings should be preserved for future generations, that it is important to preserve the historic character of our cities, and that they were personally concerned about damage to historic buildings, with the exception of Huddersfield, where only around 80% agreed to the first two statements.

Table 5-2 User attitudes towards culture and historical buildings

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Hudders-field	Hull	Total: Industrial-era
Visited any historic building (non-religious) open to the public in the last 12 months (%)	39.6%	55.5%	45.6%	53.4%	47.2%	40.3%	53.4%	39.4%	32.7%	42.6%
Arts or heritage amongst the top 5 priorities for public spending (%)	34.7%	43.2%	37.9%	41.4%	38.7%	32.8%	41.0%	31.1%	33.0%	34.9%

Figure 5-3 User attitudes towards culture and historical buildings
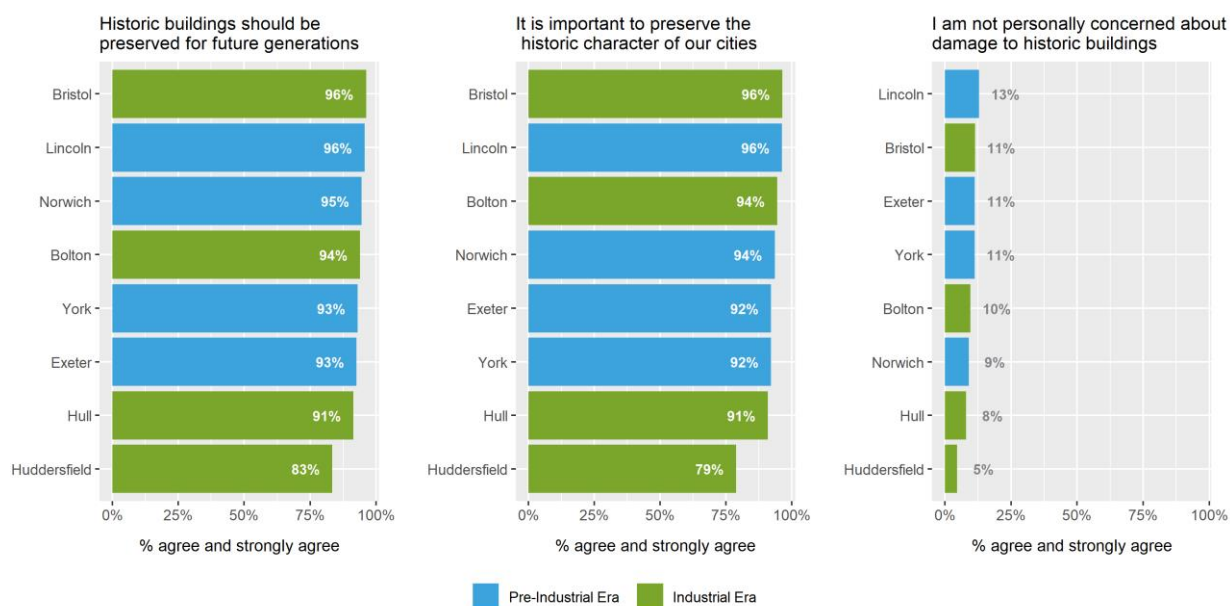
5.2.3 Visits to and conditions of high streets/civic buildings

Comparing data on visit frequency shows that Exeter is the most visited (with 89% visiting the high street more frequently than once a month), and that the other cities have around two-thirds of respondents having visited their local high-street in the past three years, with the exception of Pottergate / Bedford Street in Norwich at 48%.

Figure 5-4 Frequency of visits to heritage site (once a month or more)

Percentage of people visiting the high street of their city more frequently than once a month

City	%
Exeter	89%
Lincoln	76%
Huddersfield	71%
York	68%
Bolton	66%
Bristol	59%
Hull	59%
Norwich	48%

% of respondents per city

Legend: Pre-Industrial Era, Industrial Era

Percentage of people visiting the town hall or library of their city more frequently than once a month

City	%
Bristol	30%
Hull	26%
York	24%
Bolton	21%
Exeter	17%
Huddersfield	14%
Lincoln	13%
Norwich	4%

% of respondents per city

Legend: Town Hall, Library

Figure 5-5 Frequency of visits to heritage site (less than once a year)

Percentage of people visiting the high street of their city less frequently than once a year or have not heard of it at all

City	%
Norwich	20%
Bristol	14%
Huddersfield	10%
Hull	10%
Bolton	9%
York	3%
Exeter	0%
Lincoln	0%

% of respondents per city

Legend: Pre-Industrial Era, Industrial Era

Percentage of people visiting the town hall or library of their city less frequently than once a year or have not heard of it at all

City	%
Exeter	43%
Bristol	37%
Norwich	32%
Huddersfield	31%
York	29%
Lincoln	27%
Hull	24%
Bolton	17%

% of respondents per city

Legend: Town Hall, Library

Figure 5-6 Frequency of visits to heritage site: Pooled average within each heritage category

Percentage of people visiting the high street of their city less frequently than once a year or have not heard of it at all

Category	%
Industrial High Streets	5%
Preindustrial High Streets	4%

% of respondents per city

Percentage of people visiting the town hall or library of their city less frequently than once a year or have not heard of it at all

Category	%
Town Halls	27%
Libraries	16%

% of respondents per city

In the case of civic buildings, visits were less frequent, as one would expect given the more specific set of services offered by each. 21% of the surveyed population had visited their local library regularly (more than once per month), with the lowest regular visitor rate at Lincoln Central Library (13%). Regular visits to Town Halls were less frequent (12%).

The data suggests that the setting of the valuation scenario – willingness to pay to maintain the historic site in good condition – was set appropriately for the 16 sites surveyed. A large majority (at least 74%) of the residents surveyed considered their high street to be in good or fair condition in both Pre-industrial and Industrial-era samples, with at least one in four considering the condition good across all high streets except Whitefriargate in Hull, where the share was slightly lower at 20%. An alternative design would have asked WTP to improve the condition of the sites but given that the majority were in fair or good condition, this would not have been appropriate to the sites surveyed.

A similarly large majority considered their civic building to be in good or fair condition (73% or more), with at least 30% considering the condition good (again, with the exception of Hull Central Library, where the share was slightly lower at 25%).

Overall, the high proportion of respondents who report their historic sites as being in fair or good condition adds weight to the idea that the valuation scenario is correctly designed to elicit peoples' WTP to maintain their local heritage in good condition, although as a caveat, we cannot be certain that survey respondents are making an accurate assessment about the condition of the historic sites. We explore the relationship between perceived condition of the civic building and WTP valuation estimates in the benefit transfer function calculation Section 5.3.

Table 5-7 Condition of historic sites (self-reported by survey respondents)

City	Bolton	Bristol	Exeter	Hudders-field	Hull	Lincoln	Norwich	York	Total	
Site (high street)	Church-gate / Deans-gate	Corn Street/ Clare Street	The High Street	King Street	White-friargate	The High Street	Potter-gate / Bedford Street	Stone-gate	Pre-industrial	Industrial-era
Thinks high street is in good or fair condition	74.6%	85.5%	91.8%	89.3%	74.4%	80.6%	79.6%	81.5%	83.7%	82.3%
Thinks high street is in good condition	33.0%	26.7%	39.5%	45.5%	19.8%	21.5%	29.4%	23.7%	29.7%	32.2%
Site (civic building)	Bolton Town Hall	Bristol Central Library	Exeter City Council (Guild-hall)	Hudders-field Town Hall	Hull Central Library	Lincoln Central Library	Norwich City Hall	York Central Library	Town hall	Library

Thinks building is in good or fair condition	85.6%	82.2%	82.8%	89.5%	72.6%	68.4%	83.3%	74.1%	84.4%	73.3%
Thinks building is in good condition	60.1%	43.6%	32.2%	49.2%	24.7%	36.4%	37.7%	30.4%	40.4%	35.6%

Table 5-8 brings together external data on the coverage of heritage, leisure, and other local area conditions at the eight high streets. As would be expected, Pre-industrial high streets have a higher number of listed buildings compared to Industrial-era high streets. This is true of all listed buildings and for specifically Grade I and II* listed buildings. This suggests that the distinction made between Industrial-era and Pre-industrial high streets is valid in terms of the relative historical character of the sites. Vacant shops and betting shops were included as indicators of the economic character of the high street. There was low variation across most high streets and no clear difference between Industrial-era and Pre-industrial, with either one or two or no vacant shops or betting shops for most high streets. The exception was Churchgate / Deansgate in Bolton, with a remarkably high number of 18 vacant shops the highest as a proportion of the total km^2 of any high street. We note that data is extracted from Open Street Maps which is user-driven, and therefore dependent on the energy of users to record and update the number of vacant shops. The leisure offer of each high street varied, with a higher proportion of Cafes, restaurants, pubs, bars in Corn Street/ Clare Street Bristol and the lowest in Whitefriargate Hull.

Table 5-8 Geographical data on heritage, leisure and other local area conditions at the eight high streets

	Area (sq. km)	All listed buildings	Listed buildings (I and II*)	Vacant shops	Betting shops	Cafes, restaurants, pubs, bars	Vacant shops by sq km	Cafes, restaurants, pubs, bars by sq km	City population (2018)	Households in Local Authority area (2011 census)
Bolton Churchgate / Deansgate	83.5	10	1	18	2	26	0.22	0.31	286,000	116,371
Huddersfield King Street	15.9	25	0	1	0	9	0.06	0.57	270,000	173,525
Hull Whitefriargate	14.4	18	1	1	0	1	0.07	0.07	320,000	112,596
Bristol Corn Street/ Clare Street	15.1	35	9	0	1	19	0.00	1.26	460,000	182,747
Norwich Pottergate / Bedford Street	43.5	69	10	1	0	19	0.02	0.44	143,000	60,319
Exeter High Street	35.7	31	8	0	0	8	0.00	0.22	129,000	49,242
York Stonegate	6.6	43	19	2	0	6	0.30	0.91	210,000	83,552
Lincoln High Street	178.2	46	10	5	3	38	0.03	0.21	103,000	39,825

Sources: Open Street Map (shops data), Heritage England (listed buildings data) calculated within high street boundary.

Table 5-9 presents selected city-level characteristics assembled from external sources. We note that – aside from the total number of listed building in the city – the remaining three characteristics

are co-varying to a large extent, as indicated by the high correlation coefficients between the number of listed buildings of category I and II* and the university qualifications (0.9) as well as the Gini coefficient (0.8). The Gini coefficient provides a measure of income inequality in a geographical area. All of the cities had a Gini coefficient around 0.4. The highest Gini coefficient (indicating that incomes are distributed less equally) was found for York (0.42) with the lowest for Exeter (0.37) but the difference range between the eight cities was not notable, with high correlation between the cities. Therefore, it is likely that the impact of these characteristics on WTP (if any) would be difficult to disentangle using statistical analysis due to insufficient variation within the analysed dataset and they are not included in the function models.

Table 5-9 City characteristics

	All listed buildings	Listed buildings (category I and II*)	% population with university (level 4) qualifications	Gini coefficient	Index of multiple deprivation: Income rank (worst to best out of 317 Local Authorities in England)	Average household income (self-reported in survey)
Bolton	355	20	22.20%	-	24/317	£24,759
Huddersfield	3023	80	23.90%	0.39	13/317	£23,341
Hull	1031	186	27.70%	0.40	14/317	£22,750
Bristol	985	107	28.60%	0.40	12/317	£37,156
Norwich	2140	265	32.80%	0.40	106/317	£34,970
Exeter	466	24	15.20%	0.37	182/317	£28,119
York	1611	244	32.40%	0.42	147/317	£31,846
Lincoln	418	82	21.30%	-	146/317	£30,181

Sources: Heritage England (listed buildings data), Census 2011 (educational qualifications data), Cities Outlook 2017[86] – based on ONS data (Gini coefficient). Note: Gini coefficient values for Bolton and Lincoln were not available. Gini coefficient characteristic is included to illustrate the level of income inequality within each of the analysed cities, as a potentially relevant differentiating factor related to city-specific circumstances such as preferences, spending patterns and attitudes towards heritages shaping average WTP for heritage among the local population.

86 https://www.centreforcities.org/reader/cities-outlook-2017/city-monitor-latest-data/13-gini-coefficient/

5.2.4   Willingness to Pay values

5.2.4.1   Historic high streets

To understand the value that local residents place in their local heritage, the survey put forward a hypothetical scenario where a fund would be set up by a local trust to maintain the historic character of the high street in good condition, supported by voluntary donations. When asked if they would be willing to support such a fund in principle, local residents were more likely to be willing to pay in principle for a Pre-industrial high street than an Industrial-era one. The proportion of 'no' responses was higher for Industrial-era high streets (nearly two thirds, or 62%, not willing to pay in principle) than for Pre-industrial high streets (under a half, at 46%). The highest proportion of 'no' in principle responses came from Huddersfield at 78% of the sample. This may link to the lower levels of pro-heritage attitudes found in this city, the socioeconomic differences between cities identified in Sections 5.2.1 and 5.2.2, or other local circumstances. Following from the findings in Section 5.2.3, t-tests found no statistical significance in the association between those who consider their high street in good or fair condition and likelihood to pay in principle. We explore the factors that drive WTP in regression analysis in Appendix Table 8-8 and Table 8-9.

The most common reasons given for not being willing to pay for a historic high street were personal budget constraints (33%), or the notion that contributing to the upkeep of the high street should come from local taxes (23%) (details on the reasons behind reported willingness to pay can be found in Appendix Table 8-10). This suggests that the WTP could have been higher if the valuation scenario had been different (i.e., based around local taxes). However, we do not know how many other respondents may have protested the taxes scenario. We treat people who are not willing to pay as £0 bids in the calculation of mean WTP.

Table 5-10 Heritage conservation of high streets: Willingness-to-pay in principle

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Huddersfield	Hull	Total: Industrial-era
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate		Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	White-friargate	
Yes	19.2%	10.1%	18.9%	19.7%	16.5%	15.6%	12.5%	3.8%	18.0%	11.6%
Maybe	34.7%	41.0%	38.5%	37.7%	38.0%	25.5%	36.0%	18.7%	25.8%	26.8%
No	46.2%	48.9%	42.6%	42.6%	45.5%	58.9%	51.5%	77.6%	56.2%	61.6%

Based on the responses described in Table 5-10, respondents are either presented with a choice of payment amounts (if yes or maybe willing to pay in principle), or assigned a £0 bid (if not willing to pay in principle). All of these responses are used to estimate mean willingness to pay for high streets.

- Willingness to pay in the form of a donation to a local trust to maintain the historic character of Pre-industrial high streets in good condition is £9.29 per household per year on average, ranging from a low of £8.61 for the High Street in Lincoln, and a high of £13.07 for Stonegate in York. The distribution of WTP across cities is not wide, which provides greater confidence in the homogeneity of the Pre-industrial high streets surveyed (and is reflected in the confidence intervals in the Total Pre-industrial column).
- WTP to maintain the historic character of Industrial-era high streets in good condition is lower at £8.51 per household per year on average. The distribution of WTP across cities is wider (as reflected in the confidence intervals in the Total Industrial-era column), ranging from a low of £3.34 for King Street in Huddersfield, and a high of £11.63 for Corn Street/ Clare Street in Bristol. This may suggest greater heterogeneity of the Industrial-era high streets surveyed, which can be explored further through function transfer testing.

Recall that in all cases, and as standard in CV surveys, WTP values include both positive values and non-positive (zero) values, ensuring that the values are representative of the preferences of all local people.

Table 5-11 High Street household WTP values

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Hudders-field	Hull	Total: Industrial-era
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate		Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	White-friargate	
Mean (std. err.)	£9.60 (£1.40)	£8.61 (£1.36)	£8.74 (£1.28)	£13.07 (£2.77)	£9.29 (£0.76)	£10.56 (£2.65)	£11.63 (£2.34)	£3.34* (£1.25)	£9.28* (£2.81)	£8.51* (£1.12)
Lower confidence interval (CI) (95%)	£6.84	£5.92	£6.20	£7.59	£7.80	£5.32	£7.02	£0.88	£3.73	£6.31
Median	£2.25	£0.38	£2.75	£3.50	£2.25	£0.00	£0.00	£0.00	£0.00	£0.00
Sample size	203	225	175	171	774	180	203	148	200	731

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.

The motivations behind this payment are split, with 36% of the sample being willing to donate for the preservation of the high street's buildings because of their historical and architectural interest and a further 19% because the high street itself is an important site of historical value that should be protected. However, over a third (35%) claimed to be motivated to pay not just for the high street, but also as an expression of support for all heritage in city (for further details, see Table 8-10). This suggests that some respondents may have been insensitive to the scope[87] of the site being valued, giving a WTP value that is representative of heritage in the city more broadly. This would suggest that people's WTP is in part an ethical 'pro-heritage' statement. Such motivations have also been found in valuation studies in the environment and elsewhere, drawing into question whether the preferences elicited through WTP studies are truly reflective of the good or service described in the survey.[88] To some extent, it will never be possible to exclude the ethical position of a person from their WTP from surveys of this kind. It may also be that respondents have difficulty separating the historic character of the high street from the wider character of the city in which it is based. One option would be to exclude individuals who indicate that they were valuing a larger good than intended. However, we also have to account for the possibility that respondents are not responding to the follow-up motivation question in a fully considered way. Therefore, without additional evidence, we do not recommend excluding such a large portion of the sample based on their responses to this single question, when interpretation of their actual motivations for their valuation are unclear. However, we do urge caution that the WTP values may be partially driven by the values the local people hold for the wider historic core in which a high street is located.

As stated previously statistical validity tests use multivariate regressions to understand if WTP is driven by those factors which have been found to drive WTP in previous studies, thus increasing the confidence in the results. (Appendix Table 8-8) Regression analysis shows that in the high street pooled regressions (pooling all Pre-industrial high streets into one regression and Industrial-era high streets into another), that the factors that are theoretically expected to be associated with WTP values are statistically significant and in the correct direction. Specifically, survey respondents on higher household incomes on average have higher WTP values, as well as those who are older, those who are members of a heritage, conservation or environmental organisations (an indicator of engagement with heritage), and those who would rank public spending on heritage among their top five priority areas.

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87 Sensitivity to scope occurs, for example, if someone is presented with a scenario of preserving a single heritage site and preserving 100 heritage sites, the amount they state should differ in magnitude in each case. If they state a similar WTP in both situations, their responses are unreliable and insensitive to the number of sites being valued.

88 Bandara and Tisdell 2005

Higher education (education level as reported by survey respondents) was significantly associated with higher WTP for Industrial-era high streets only, and not significant for any of the individual Pre-industrial high streets. Following a similar pattern, frequency of visits to the high street was significantly associated with higher WTP for Industrial-era high streets, but not Pre-industrial high streets. Agreement/strong agreement with the statement that 'it is important to preserve the historic character of our cities' was significantly associated with higher WTP for Industrial-era high streets only in the pooled models, although individual Pre-Industrial high streets did have a positive and significant association between WTP and agreement with this statement (Pottergate / Bedford Street in Norwich and Stonegate in York). Conversely, the subjective perception that the high street is in good condition was significantly negatively associated with WTP for Pre-industrial high streets only, and not significant in case of the pooled Industrial-era high streets.

The only city-specific characteristic included in the pooled high streets regressions is an indicator of the overall character of the city (Pre-industrial/Industrial-era). This choice of variables was motivated by two reasons: First, we found few statistically significant differences in WTP between cities after the main demographic and attitudinal factors as well as site usage characteristics were controlled for. Second, due to the high correlation between many of the city-level characteristics summarised in Table 5-9, their effects would be difficult to disentangle using regression analysis. Therefore, we decided to focus on Pre-industrial/Industrial-era character of the city as a characteristic that captures the multidimensional differences between the eight cities in a summary way.[89] In the pooled regression including all eight of the high streets, pre-industrial character of the city was significantly positively associated with WTP values.

Given the importance of income as a theoretical driver of WTP in statistical validity testing, it is worth noting that four of the individual high street regressions showed no significant association

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89 Overall, the most comprehensive way to capture unique location-specific factors which may affect WTP in the context of this study would require including city indicator variables in regression analysis. However, this approach has two major drawbacks: First, it provides little understanding of what the location-specific WTP drivers may be, because none of these potential drivers are included in the analysis (for example, if average WTP in city A is found to be lower than in city B, this would be interpreted simply as an idiosyncrasy of city A instead of being attributed to some measurable characteristic that differentiates city A from B). Second, it is not suitable for benefit transfer applications, as the estimated location-specific impact cannot be transferred outside of the set of locations included in the sample dataset. Therefore, in the function transfer regressions we focus on broader city-level characteristics, such as those summarised in Table 5-9. However, as these variables stay constant across all observations in the same city, they are effectively equivalent to a weighted average of city indicators – and therefore the number of these variables that can be included in a single pooled regression is limited by the total number of cities in our sample as well as by the amount of variation in WTP between cities. In order to balance between the need to account for city-specific characteristics that might affect willingness to pay, the need for sufficient variation in the sample to allow for estimating the effect of these characteristic on WTP, and the applicability of results outside of the collected sample we selected pre-industrial character of the city as the only city-level characteristic included in benefit transfer regressions.

between household income and WTP: Exeter High Street, Lincoln High Street, Churchgate / Deansgate in Bolton and King Street in Huddersfield. Note that in two of these cases (Exeter and Huddersfield) sample sizes are lower due in part to missing observations for the household income question. This may be a result of sensitivities around these questions and potential interviewer bias introduced in face to face interviews (the majority of missing income observations occurred in face to face surveys). This also affects model fit, with adjusted $R2$ values varying from 25% in Potter-gate / Bedford Street Norwich and 21% in Church-gate / Deans-gate Bolton to only 2% in Exeter High Street, where sample loss due to missing income data was greatest.

Overall, the statistical testing of the association between WTP and theoretical drivers of heritage value through regression models when pooled for Pre-industrial and Industrial-era high streets provides moderate confidence in the robustness of the results. While statistical validity tests are less strong in some individual high street regressions, in some cases this is driven by regression sample size issues due to missing data on household income. While this does not affect the mean WTP values obtained, it will impact on the data and information available for adjusted and function transfer testing.

5.2.4.2   Historic civic buildings

The proportion of respondents not willing to pay in principle for historic civic buildings was close to one half (53% in the case of town halls, 51% in the case of libraries). The highest proportion of 'no' in principle responses for town halls came from Bolton at 65%, and for libraries from Hull at 62% of the sample. This may reflect the character of the town hall, or the lower socioeconomic status of the local residents or other local circumstances. Following from the findings in Section 5.2.3, t-tests found no statistical significance in the association between those who consider their civic building in good or fair condition and likelihood to pay in principle.

The most common reasons given for not being willing to pay for a historic civic building were again personal budget constraints (31% for town halls and 39% for libraries), or a protest that contributing to the upkeep of the high street should come from local taxes (33% for town halls and 28% for libraries, meaning that this reason is higher for civic buildings than for high streets, which may be linked to the council services that are delivered from many civic buildings) (Appendix Table 8-11; Table 8-12).

Table 5-12 Heritage conservation of historic buildings: Willingness-to-pay in principle

City	Bolton	Exeter	Hudders-field	Norwich	Total: Town hall	Bristol	Hull	Lincoln	York	Total: Library

Site	Bolton Town Hall	Exeter City Council (Guildhall)	Huddersfield Town Hall	Norwich City Hall	📄	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	📚
Yes	12.6%	22.1%	7.6%	10.1%	14.0%	16.5%	16.0%	12.9%	14.1%	14.5%
Maybe	22.8%	31.7%	34.7%	37.9%	33.5%	42.7%	21.9%	34.2%	38.4%	34.9%
No	64.5%	46.2%	57.7%	52.1%	52.5%	40.8%	62.1%	52.9%	47.4%	50.6%

Based on the responses described in Table 5-12, respondents are either presented with a choice of payment amounts (if yes or maybe willing to pay in principle), or assigned a £0 bid (if not willing to pay in principle). All of these responses are used to estimate mean willingness to pay for civic buildings.

- Willingness to pay in the form of a donation to a local trust to maintain the historic character of town halls in good condition is £7.29 per household per year on average. The distribution of average WTP values across town halls ranges from a low of £4.47 for Bolton Town Hall to a high of £9.04 for Exeter City Council (Guildhall).
- WTP to maintain the historic character of libraries in good condition is higher at £9.79 per household per year on average. This higher WTP may be related to peoples' high propensity to visit libraries (37% of the sample) compared to town halls (21%) (recall Section 5.2.3). The distribution of average WTP across the four library sites ranges from a low of £7.76 for Hull Central Library to a high of £13.49 for York Central Library.

Additional analysis shows that WTP for historic libraries is significantly positively associated with regular library usage (t=6.5, p=0.000, with regular user defined as more than once per month in the last three years; see also Appendix Table 8-17). These results indicate that more regular users hold higher values for the historic library. This aligns with theoretical expectations, that greater familiarity with a heritage site would lead to greater values for its maintenance. However, the possibility that people's stated value is at least partially influenced by the use of those services cannot be completely avoided, which, if it is true, would lead to an inflation of WTP values (since the services themselves provide direct benefits to those users). While the survey instructed respondents to ignore the services provided when stating their maximum WTP, it is impossible to test that some conflation has not occurred. However, this is always a challenge when valuing 'quasi-market' goods that have both direct user services and indirect spillover benefits to the local place. Nonetheless, this methodological consideration is further justification for applying the more conservative lower bound WTP values when aggregating to local populations, to account for this uncertainty and to avoid over-attribution of values.

SIMETRICA **Jacobs**

Table 5-13 Civic Buildings household WTP values

City	Bolton	Exeter	Hudders-field	Norwich	Total: Town hall	Bristol	Hull	Lincoln	York	Total: Library
Site	Bolton Town Hall	Exeter City Council (Guild-hall)	Hudders-field Town Hall	Norwich City Hall	🗎	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	📚
Mean (std. err.)	£4.47* (£0.80)	£9.04* (£1.78)	£4.97* (£1.23)	£7.66* (£1.23)	£7.29* (£0.79)	£12.35 (£2.12)	£7.76 (£1.99)	£8.06 (£1.74)	£13.49 (£2.78)	£9.79 (£1.08)
Lower confidence interval (CI) (95%)	£2.89	£5.53	£2.55	£5.22	£5.73	£8.16	£3.84	£4.62	£8.00	£7.67
Median	£0.00	£2.25	£0.00	£0.00	£0.00	£2.75	£0.00	£0.00	£2.25	£0.00
Sample size	195	187	164	188	734	179	196	203	154	732

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.

The motivations behind WTP for town halls are more clearly linked to the site itself than wider pro-heritage sentiment, with the majority being willing to pay because the town hall is an important site of historical value that should be protected (63%), or related to their enjoyment of it (14% enjoyed visiting it or considered it is an important part of their everyday life), while only 15% were willing to pay as an expression of support for wider heritage (Appendix Table 8-11). This proportion was a little higher for libraries, where a third indicated that their WTP was an expression of support for all public libraries, while 41% considered it an important site of historic value, and 14% indicated being willing to pay because they enjoyed visiting it (Appendix Table 8-12). This may indicate that the public service element of the local library is to some extent connected to the values that people hold for the heritage of the building, but that this is less strong in the case of town halls where the services offered may be a less integral part of the value.

WTP for both civic building types is comparable with the WTP for high streets, which is contrary to expectations given the size and number of historic buildings which are contained within a high street. The lack of proportion between WTP values for a single civic building versus the high street (made up of multiple buildings) could be a consequence of the iconic nature of the civic buildings which makes local people value them more than any of the individual buildings that make up a historic high street. However, this result could also be influenced by respondents' insensitivity to the scope of the heritage goods being valued, which is a common bias found in CV surveys such

as this. [90] Note that none of the town halls were located within the high street valued, and respondents were asked to consider them as entirely separate payments.

Statistical validity tests show that in the civic building pooled regressions (one for town halls and one for libraries), that the factors that are theoretically expected to be associated with WTP values are statistically significant and in the correct direction. Specifically, those on higher household incomes on average have higher WTP values, and those who would rank public spending on heritage among their top five priority areas (an indicator of engagement with cultural heritage) have higher WTP on average for both town halls and public libraries.

The association between frequency of visits to the civic building in the past 12 months was significant for libraries only (not town halls) which may be related to the more regular day to day services that libraries provide (e.g. book lending, access to information), compared to the more one-off services of many town halls.

The subjective perception that the high street is in good condition was not significantly associated with WTP for in either of the pooled civic building regressions or the individual civic building models. Similarly, higher education was not significantly associated with WTP for any of the pooled civic building regressions.

WTP was significantly higher for those who are members of a heritage, conservation or environmental organisations in the town hall pooled regression only and not for libraries.

Agreement/strong agreement with the statement that 'historic buildings should be preserved for future generations' was significantly associated with higher WTP in only two of the individual civic building models (Bolton Town Hall and York Central Library).

The only city-specific characteristic included in the pooled civic building regressions is an indicator of the overall character of the city (Pre-industrial/Industrial-era). This is motivated – similarly as in the case of high streets – by two reasons: First, the lack of statistically significant differences in WTP between cities after the main demographic and attitudinal factors as well as site usage characteristics were controlled for. And second, the high correlation between many of the city-level characteristics summarised in Table 5-9 – which means that their effects would be difficult to disentangle using regression analysis. In the end, city character was not found to be a significant driver of WTP – either for town halls, or libraries.

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90 Carson 1997

Given the importance of income as a theoretical driver of WTP in statistical validity testing, it is worth noting that four of the individual civic building regressions showed no significant association between household income and WTP: Lincoln Central Library, Bolton Town Hall, Exeter City Council (Guildhall), and Huddersfield Town Hall. Note that three of these cases fall in the town hall category, and that in two of these cases (Exeter and Huddersfield) sample sizes are lower due in part to missing observations for the household income question. Again, this may be a result of sensitivities around these questions and potential interviewer bias introduced in face to face interviews (the majority of missing income observations occurred in face to face surveys). This also affects model fit, with adjusted R2 values varying from 15-20% in the pooled models to negative figures in the case of Exeter City Council (Guildhall) (indicating that the inclusion of covariates in the regression introduce noise to the prediction of WTP).

Overall, the statistical testing of the association between WTP and theoretical drivers of heritage value through regression models when pooled for civic buildings is weaker, and individual town hall regressions are weaker still, which provides less confidence in the robustness of the results for town halls. However, in some cases this is driven by regression sample size issues driven by missing data on household income, which is improved in the pooled regressions.

5.2.5   Summary

This study produces average WTP values for two types of high streets: Those based in Pre-industrial cities, and those based in Industrial-era cities. Historic high street and town hall WTP values represent a combined 'use and non-use values held by local residents' who are familiar with the high street.

- **The WTP estimate is £7.80 to maintain the historic character of Pre-industrial high streets in good condition per household per year.** This is based on a pooled dataset of WTP values for four Pre-industrial high streets. The average WTP value for Pre-industrial high streets is £9.28, with a range of average WTP values from £8.61 to £13.07 for each high street.[91]
- **The WTP estimate is £6.31 to maintain the historic character of Industrial-era high streets in good condition per household per year**. This is based on a pooled dataset of WTP values for four Industrial-era high streets. The average WTP value for Industrial-era high streets is £8.51, with a range of average WTP values from 3.34 to £11.63 for each high street. The wider range for Industrial-era compared to Pre-industrial high streets indicates that there

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91 In all cases the possible WTP responses include both positive values and non-positive (zero) values, in line with best practice, ensuring that those who have no actual value for the site are also represented in the study.

is more variation between Industrial-era high streets in our sample than Pre-industrial high streets.

- Variation between sites can lead to greater levels of transfer errors (which will be tested in the subsequent section). Part of this variation is explained by the heterogeneity of the Industrial-era cities, with some in areas with substantially lower socioeconomic status of residents and lower concentrations of listed buildings. In the subsequent section we explore the effect that these differences have on WTP through benefit transfer testing.

This study produces average WTP values for two types of historic civic building: town halls and public libraries. Historic civic building WTP values combine users and non-users in the sample, with controls for any difference in the values obtained, but exclude those who have never heard of the building.

- **The WTP estimate is £5.73 to maintain the historic character of town halls in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic town halls. The average WTP value for four pooled town halls is £7.29, with a range of average WTP values from £4.47 to £9.04 for each town hall.
- **The WTP estimate is £7.67 to maintain the historic character of libraries in good condition per household per year**. This is based on a pooled dataset of WTP values for four historic libraries. The average WTP value for the four pooled libraries is £9.79, with a range of average WTP values from £7.76 to £13.49 for each library.
- Again, the level of transfer error that such variation introduced is tested in Section 5.3.

This higher WTP for libraries may be related to peoples' high propensity to visit libraries (37% of the sample) compared to town halls (21%) (recall Section 5.2.3). Additional analysis shows that WTP for historic libraries is significantly positively associated with regular library usage. These results indicate that more regular users hold higher values for the historic library, which aligns with theoretical expectations. There is also some evidence of survey respondents interpreting the valuation scenario in a different way to intended. These kind of information effects and biases are common in SP surveys and we attempt to minimise their effects through careful survey design. For instance, statistical tests show that those who regularly visit libraries and use their services report a higher WTP to maintain the historic library building in good condition. This aligns with theoretical expectations, that greater familiarity with a heritage place would lead to greater values for its maintenance. However, it is not possible to avoid the possibility that people's stated value is at least partially influenced by the use of those services, which, if it is true, would lead to an inflation of WTP values (since the services themselves provide direct benefits to those users). The

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same is true of town halls, although a smaller proportion of the sample group had used their services. While the design of the survey instructed respondents to ignore the services provided when stating their maximum WTP, it is impossible to test that some conflation has not occurred. However, this is always a challenge when valuing 'quasi-market' goods that have both direct user services and indirect spillover benefits to the local place.

Finally, an important factor that can affect the robustness of CV surveys occurs if respondents are insensitive to the scope of the good being valued. In other words, if someone is presented with a scenario for preserving a single heritage site or one for preserving 100 heritage sites, the amount they are willing to pay would be reasonably expected to differ in magnitude in each case. This would be detected if respondents state a similar WTP in both situations, suggesting that their responses are insensitive to the number of sites being valued.[92] In this study there is some possible evidence that insensitivity to scope may be present, due to the fact that WTP values for the historic character of a high street (which contains many historic buildings) is not significantly higher than WTP values for individual civic buildings. However, it is not 100% clear that this is an insensitivity to scope issue, as it could be that people consider their civic buildings more valuable in isolation – perhaps due to their iconic role within the place-making of the city – than many of the historic buildings in a high street. Follow-up questions may provide supporting evidence, albeit with the familiar lack of certainty about a respondents' complex motivations for being willing to pay. A third of respondents stated that their WTP value is an expression of their pro-heritage beliefs and their broader interest in preserving all heritage in the city, which could lead to some inflation of the WTP estimates. In extreme cases, such respondents could be excluded from the sample. However, given that follow-up questions do not fully explain the motivations behind WTP, it is not advisable to reduce the sample in this way, as it reduces the predictive power of the benefit transfer tests.

- **For the purpose of benefit transfer, it is recommended that business cases use the more conservative lower bound WTP values. Lower bound WTP is estimated as the lower limit 95% confidence interval around the mean WTP. This is to account for the fact that mean WTP is likely to be inflated by the inclusion of direct use values for those who use the sites for services and possible insensitivity to scope. This means that average WTP may not be the most accurate estimate for external use, so we recommend taking the lower bound WTP for benefit transfer.**

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92 Carson 1997

5.3   Benefit Transfer (BT)

- Benefit transfer is the process of taking average WTP values for a category of local heritage (high street or civic building in this case) from one research study and transferring it to estimate the value of another high street or civic building.

- Surveying multiple sites enables the values to be 'transfer tested' to estimate the level of 'error' that is introduced when transferring to another historic high street or civic building in a different place.

- We perform a set of transfer tests that sequentially places one of the study sites in the role of an unknown site and predicts the WTP for this site, based on the pooled WTP values from the other remaining 'study sites'. This replicates the process that would be applied if we were able to know the WTP for a site we want to value in a business case.

- A certain amount of transfer error is expected, but WTP values should only be transferred to other sites if they are within acceptable levels of error, which is recommended to be less than 40%.

- Transfer testing allows us to make conclusions about the most appropriate transfer method for each category of local heritage values. We label clearly in the Local Heritage Value Bank which WTP values for local heritage values are robust for benefit transfer and under which methods.

- **Pre-industrial high streets:** Transfer errors are safely below the acceptable level of transfer error using any of the three transfer methods. **Conclusion:** WTP values for Pre-industrial cities can be transferred to comparable sites with relatively low risk of transfer error.

- **Historic libraries:** Transfer errors are at or below the acceptable levels of transfer error for simple and adjusted transfer. **Conclusion:** WTP values for historic libraries can be transferred to comparable sites with acceptable risk of transfer error using these two methods but applying function transfer is not recommended.

- **Town halls**: Acceptable levels of transfer error are achieved only with adjustment for the income differentials between towns (adjusted transfer method). **Conclusion:** Caution should be applied when transferring these values, and only with consideration of the income differences between the study town hall sites and the business case site.

- Extra caution should be applied to **Industrial-era high streets**, where transfer errors were outside of the acceptable level with all transfer methods, likely because the WTP values varied too much between the four sites surveyed. **Conclusion:** Industrial-era high street WTP values should be seen only as indicative of the values that people hold for these four particular Industrial-era high streets, and not be used for transfer to Industrial-era high streets as a whole.

Benefit transfer is the process of taking average WTP values for a category of local heritage (for instance, Pre-high streets or civic buildings) from one research study (such as this one) and transferring it to another high street or civic building, with confidence that it will be a robust representation of the value that people would state for that heritage site if they were asked.

In statistics as a sample size grows, the average gets closer to the 'true' average of the whole population. Surveying multiple similar heritage sites in each category of high street and civic building, rather than one, gives greater confidence that the WTP values are representative of 'an average historic site of that type'.

Some error will always be introduced through benefit transfer because no two heritage sites are the same in characteristics. It is recommended to statistically test how much error is created when transferring from the 'study sites' (the historic high streets and civic buildings surveyed as part of this study) to a hypothetical 'policy site', which would be the historic high street or civic building that needs to be valued for a business case (or other purpose) but for which WTP values have not previously been estimated. To do this - and following best practice in European Union and UK Government studies[93] - 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, as recommended by 40% in the literature.[94]

The procedure as described above is known as 'simple' unit transfer. In addition to 'simple' benefit transfer, which takes a pooled WTP for all of the four sites surveyed, there are also more sophisticated transfers which allow the analyst – the person calculating the business case for the heritage site – to adjust the WTP values to the characteristics of that site, such as income or other demographic or geographic data. This has the potential to adjust the WTP value to make it more tailored to the specific characteristics and local population of the historic place. 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.

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93 Lawton et al. 2018; D. Fujiwara et al. 2018; S. Mourato et al. 2014

94 Ready and Navrud 2006

5.3.1 High Street WTP values

Table 5-14 shows how the simple unit benefit transfer can be applied to use values in each of the four Pre-industrial and four Industrial-era high streets. In every column one of the cities is selected as a policy site and the remaining three Pre-industrial/Industrial era high streets 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. Note that errors of over 200% are common in cases where sites are not sufficiently homogeneous.

Transfer errors (TE) are low among Pre-industrial high streets, with the largest errors observed for the High Street in York (|TE|=31%: The bracket means in absolute terms). The mean difference between observed and predicted WTP are not significant in any of the Pre-industrial high streets, safely within what is considered to be an acceptable range in the academic 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, see Section 4.8).

Transfer errors (TE) are higher for Industrial-era high streets, with the largest errors observed for King Street in Huddersfield (|TE|=220%) and Corn Street/ Clare Street in Bristol (|TE|=39%). The mean difference between observed and predicted WTP is significant for King Street in Huddersfield.

Table 5-14 High Street WTP (Pre-industrial and Industrial-era): Simple unit transfer errors

City	Pre-industrial High Street Policy sites				Industrial-era High Street Policy sites			
	Exeter	Lincoln	Norwich	York	Bolton	Bristol	Hudders-field	Hull
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate	Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate
Policy site: Observed mean WTP	£9.60	£8.61	£8.74	£13.07	£10.56	£11.63	£3.34	£9.28
BT prediction: Pooled mean WTP from study sites	£9.16	£9.56	£9.58	£8.98	£7.98	£7.12	£10.68	£8.32

Difference (absolute)	£0.44	£0.95	£0.84	£4.09	£2.58	£4.51	£7.34	£0.96
Transfer error	4.6%	11.0%	9.6%	31.3%	24.4%	38.8%	219.8%	10.3%
t-test: Difference significant at 5% level	No	No	No	No	No	No	Yes	No

In sum, the simple unit transfer errors are within an acceptable range as suggested in the literature for Pre-industrial high streets, but not for Industrial-era high streets. This may suggest a higher level of homogeneity within the Pre-industrial high street sites. Descriptive statistics presented earlier may point to differences in the characteristics and physical condition of Industrial-era high streets (Section 5.2.3), as well as the socioeconomic status of their residents (Section 0). In particular, Huddersfield has considerably lower average household income levels (£23,341) which regression analysis shows are significantly associated with its lower WTP of £3.34 (approximately one third of the other Industrial-era high streets' WTP). Huddersfield also reported the lowest levels of pro-heritage attitudes of any city. Conversely, Bristol residents report a higher city mean household income level (£37,156), which is associated with the higher WTP (£11.63) for this high street. These factors are explored further in the adjusted and function transfer tests below. We also caveat that the sample size for Huddersfield is lower, which may affect the representativeness of these results and the statistical power of transfer testing on this city.

In addition, an important contextual factor for Huddersfield is that around the time of the survey Kirklees Council unveiled a ten-year £250million masterplan for Huddersfield city centre, with improvements to the leisure and culture offer on the High Street.[95] The prospect of a council-funded regeneration being in the press at the same time as the survey may have led to more strategic responses and protest answers from Huddersfield residents, who may have been inclined to give a lower WTP to influence decisions around local taxes and funding (in other words, respondents may have lowered their WTP values in the belief that it would influence the setting of local taxes to pay for such an improvement).

Table 5-15 shows that the adjusted unit transfer approach leads to a slight increase in transfer errors for the Pre-industrial high streets. Despite this, the range of transfer errors using the adjusted unit transfer approach falls between 4% in the case of the high street in Lincoln and 31% in the case of Pottergate / Bedford Street in Norwich, which remains within what is considered an

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95 Note that this information was only published after the survey went into the field https://www.yorkshirepost.co.uk/news/people/how-250m-huddersfield-town-centre-masterplan-aims-to-bring-new-life-to-the-high-street-1-9845493

acceptable range. The mean difference between observed and predicted WTP is again not significant in any of the Pre-industrial high streets.

For Industrial-era high streets adjusted unit transfer approach leads to a decrease in transfer errors for the two historic high streets where the simple unit transfer errors were largest (Bristol and Huddersfield), with a slight increase in the two other high streets, although not above an acceptable transfer error range. The mean difference between observed and predicted WTP is again significant only in the case of Huddersfield.

Overall, adjusted unit transfer works better for Industrial-era high streets, with an acceptable range of transfer errors in three out of the four high streets, and a reduction in transfer error in the Huddersfield King Street case (although still above acceptable thresholds of error). This may confirm our suspicion that the difference in average household income between Huddersfield (at the lower income end) and Bristol (at the higher income end) is contributing to the transfer error between Industrial-era high streets, and that this is partially corrected by adjusting for differences in residents' income levels.

Table 5-15 High Street WTP (Pre-industrial and Industrial-era): Adjusted unit transfer errors

City	Pre-industrial High Street Policy sites				Industrial-era High Street Policy sites			
	Exeter	Lincoln	Norwich	York	Bolton	Bristol	Hudders-field	Hull
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate	Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate
Income adjustment								
Policy site: Mean income	£29,646	£28,383	£35,123	£31,985	£24,162	£37,535	£21,979	£21,147
Pooled study sites: Mean income	£31,993	£32,910	£29,347	£31,417	£27,825	£22,436	£28,605	£28,647
Income ratio (Policy income / Study income)	0.9	0.9	1.2	1.0	0.9	1.7	0.8	0.7
Benefit transfer								
Policy site: Observed mean WTP	£9.60	£8.61	£8.74	£13.07	£10.56	£11.63	£3.34	£9.28

BT prediction: Pooled mean WTP from study sites, adjusted by income ratio	£8.49	£8.24	£11.46	£9.14	£6.93	£11.91	£8.20	£6.14
Difference (absolute)	£1.11	£0.36	£2.72	£3.93	£3.63	£0.28	£4.87	£3.14
Transfer error	11.6%	4.2%	31.2%	30.1%	34.3%	2.4%	145.9%	33.8%
t-test: Difference significant at 5% level	No	No	No	No	No	No	Yes	No

Table 5-17 shows the mean predicted WTP for historic high streets with the coefficients estimated in Table 5-16. Both Pre-industrial and Industrial-era cities are included in the same regression Table 5-16 with a control for the difference between the two city types. By increasing the available sample size, this approach yields more precise coefficient estimates. It also allows us to investigate whether the two city types are significantly different from each other. We note that the coefficient estimates are fairly stable across Table 5-16, in line with our assumption that that the characteristics included in the regression model have a uniform effect on WTP across all analysed sites. The results also indicate that high street WTP tends to be higher for sites considered to be in worse condition, in Pre-industrial cities compared to Industrial cities. WTP is also higher on average among regular high street visitors, which fits our prior expectations that those who experience the historic high street more often in their everyday life would value it more in their sense of place.

The function transfer errors reported in Table 5-17 for Pre-industrial high streets vary between a low of 4% in the case of the High Street in Lincoln and a high of 17% in the case of Stonegate in York. This error range is lower than that obtained through adjusted transfer and simple unit transfer, and so again falls safely below the threshold proposed in the literature. The mean difference between observed and predicted WTP is again not significant in any of the Pre-industrial high streets.

The function transfer errors for Industrial-era high streets reported in Table 5-17 all fall close to or above the minimum acceptable threshold of 40%, with a low of 39% in the case King Street in Huddersfield and a high of 45-47% in case of the three remaining high streets. This represents a considerable decrease in transfer error for Huddersfield compared to the simple and adjusted transfer methods, but at the expense of increased transfer errors elsewhere. The mean difference

between observed and predicted WTP is not significant in any of the Industrial-era high streets, which indicates an improvement over the simple and adjusted transfer methods.

In sum, while the error range for Pre-industrial high streets is an improvement to that obtained through adjusted and simple unit transfer, the comparison is mixed in the case of Industrial-era high streets.

Overall, these results suggest that the reliability of WTP predictions based on the function transfer approach should be treated cautiously, something that was found in the 2019 AHRC study of benefit transfer in historic towns and cathedrals[96]. 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 13% of WTP variation within the relevant study sample).

Table 5-16 High Street WTP (Pre-industrial and Industrial-era): Reduced WTP regressions for value transfer

City	Pre-industrial High Street Policy sites				Industrial-era High Street Policy sites			
	Exeter	Lincoln	Norwich	York	Bolton	Bristol	Hudders-field	Hull
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate	Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate
Household income	0.522***	0.470***	0.442***	0.427***	0.443***	0.414***	0.441***	0.446***
Thinks high street is in good condition	-0.485***	-0.491***	-0.352***	-0.447***	-0.515***	-0.463***	-0.426***	-0.501***
Visited high street more than once a month in last 3 years	0.285**	0.226**	0.191	0.235**	0.252**	0.266**	0.231**	0.216*
Pre-industrial city vs Industrial-era city	0.351***	0.394***	0.333***	0.349***	0.376***	0.413***	0.263**	0.394***
Constant	-4.247***	-3.691***	-3.428***	-3.285***	-3.454***	-3.214***	-3.327***	-3.473***
Observations	1053	981	1016	1018	994	1001	1061	975
Adjusted R-squared	0.126	0.119	0.090	0.097	0.111	0.105	0.086	0.107

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

Table 5-17 High Street WTP (Pre-industrial and Industrial-era): Function transfer errors

	Pre-industrial High Street Policy sites	Industrial-era High Street Policy sites

96 Lawton et al. 2018

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City	Exeter	Lincoln	Norwich	York	Bolton	Bristol	Hudders-field	Hull
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate	Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate
Policy site: Observed mean WTP	£8.78	£9.79	£9.49	£11.66	£9.81	£11.74	£4.50	£9.81
BT prediction: Applying value transfer function coefficients from pooled study sites to mean policy site characteristics	£10.04	£10.14	£10.16	£9.72	£5.39	£6.26	£6.25	£5.24
Difference (absolute)	£1.26	£0.35	£0.68	£1.94	£4.42	£5.48	£1.75	£4.57
Transfer error	14.3%	3.6%	7.1%	16.6%	45.1%	46.7%	38.8%	46.6%
t-test: Difference significant at 5% level	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 $p<0.005$.

5.3.1.1 Summary

- **Pre-industrial high streets:** Transfer errors (TE) are safely below the acceptable level of transfer error among Pre-industrial high streets using simple, adjusted, and function transfer. We therefore recommend that WTP values for Pre-industrial cities can be transferred to comparable sites with relatively low risk of transfer error. **We recommend WTP values can be transferred to other Pre-industrial high streets with acceptable transfer error. Both simple and adjusted transfer are possible, but we recommend simple unit transfer which performs best and has lower informational demands on the analyst.**

- **Industrial-era high streets:** Transfer errors are higher for Industrial-era high streets, which is in part driven by the significantly lower WTP observed for Huddersfield. Descriptive data suggests that Huddersfield King Street is distinct from the Industrial-era high streets in terms of the lower income levels of local residents, and lower levels of pro-heritage attitudes found in this city. We also caveat that the sample size for Huddersfield is lower, which may affect the representativeness of these results and the statistical power of transfer

testing on this city. Huddersfield's outlier status means that transfer errors for Industrial-era high streets are above the acceptable threshold in simple and adjusted transfer. In addition, a ten-year £250million masterplan for Huddersfield city centre was announced around the time of the survey which may have led to strategic bidding behaviour (respondents may have lowered their WTP values in the belief that it would influence the setting of local taxes to pay for such an improvement). **We do not recommend transfer of Industrial-era high street WTP to other high streets due to the high transfer errors. However, the WTP values are still applicable to the four cities themselves, and represent an important contribution to the evidence base around heritage and the value of local place to residents of those cities.**

5.3.2   Civic Building WTP values

Table 5-18 shows that simple unit transfer errors (TE) cover a broad range among town halls, with the largest errors observed for Bolton Town Hall (|TE|=71%) and Huddersfield Town Hall (|TE|=56%) falling above the acceptable range (see Section 4.8). The mean difference between observed and predicted WTP is significant in case of Bolton Town Hall.

Transfer errors are less variable among libraries, with the largest errors observed for Lincoln Central Library (|TE|=40%) falling just within the acceptable range. The mean difference between observed and predicted WTP is not significant in any of the libraries.

In sum, the simple unit transfer errors are at the threshold of what may be considered acceptable for libraries (at the 40% level), but not for town halls. Descriptive statistics presented earlier may point to differences in the characteristics and physical condition of historic civic buildings (Section 5.2.3), as well as the socioeconomic status of residents in the cities they are located (Section 0). For example, Bolton and Huddersfield have relatively low average household income levels among the town hall sites (£24,759 and £23,341 respectively), which regression analysis shows to be associated with their lower WTP values (£4.47 and £4.97, respectively), with Huddersfield moreover being characterised by a low share of regular library visitors. In a similar vein, Hull and Lincoln are characterised by relatively low average household income levels among the library sites (£20,920 and £27,568 respectively), with Lincoln furthermore displaying a low share of regular library users (13%, compared to at least 25% at the other libraries). These factors are explored further in the adjusted and function transfer tests below.

Another conjecture we explore below relates to the distinction between Pre-industrial and Industrial-era cities. We suspect that some of the unobservable factors contributing to higher WTP for high streets in Pre-industrial cities may have a similar impact on WTP for civic buildings. For instance, there could be complementarities between different historic buildings that are stronger for Pre-industrial than Industrial-era areas, meaning that clusters of historic buildings are perceived as more valuable than the sum of the parts. We also caveat that the sample sizes for Huddersfield and York are lower, which may affect the representativeness of these results and the statistical power of transfer testing on these cities.

Table 5-18 Civic Building WTP: Simple unit transfer errors

City	Town Hall Policy Sites				Library Policy Sites			
	Bolton	Exeter	Hudders-field	Norwich	Bristol	Hull	Lincoln	York
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Hudders-field Town Hall	Norwich City Hall	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library
Policy site: Observed mean WTP	£4.47	£9.04	£4.97	£7.66	£12.35	£7.76	£8.06	£13.49
BT prediction: Pooled mean WTP from study sites	£7.66	£6.41	£7.76	£7.06	£8.90	£10.18	£11.25	£9.26
Difference (absolute)	£3.19	£2.63	£2.79	£0.60	£3.45	£2.42	£3.18	£4.23
Transfer error	71.4%	29.1%	56.1%	7.8%	27.9%	31.2%	39.5%	31.4%
t-test: Difference significant at 5% level	Yes	No	No	No	No	No	No	No

Table 5-19 shows that the adjusted unit transfer approach leads to a decrease in transfer errors for the two historic town halls where the simple unit transfer errors were largest (Bolton and Huddersfield), with a moderate increase for the two other town halls. As a result, the range of transfer errors using the adjusted unit transfer approach falls between 8% in the case of Huddersfield Town Hall and 42% in the case of Bolton Town Hall, bringing it very close to what is considered an acceptable range. The mean difference between observed and predicted WTP is not significant for any of the four town halls, which is an improvement relative to the simple unit transfer approach.

For libraries, the adjusted unit transfer approach leads to a slight decrease in transfer errors across all sites, thus keeping it within the acceptable transfer error range. The mean difference between observed and predicted WTP is again not significant for any of the libraries.

Overall, adjusted unit transfer appears to work better than the simple unit transfer for civic buildings. The resulting transfer errors are within the acceptable range for all libraries and three out of the four town halls, with the transfer error only slightly above the acceptable range in case of Bolton Town Hall. This may confirm our hypothesis that the difference in average household income between Bolton and Huddersfield (at the lower income end) and Exeter and Norwich (at the higher income end) is contributing to the transfer error between town halls, and that this is partially corrected by adjusting for differences in residents' income levels.

Table 5-19 Civic Building WTP: Adjusted unit transfer errors

City	Town Hall Policy Sites				Library Policy Sites			
	Bolton	Exeter	Huddersfield	Norwich	Bristol	Hull	Lincoln	York
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Huddersfield Town Hall	Norwich City Hall	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library
Income adjustment								
Policy site: Mean income	£25,084	£28,948	£21,427	£34,221	£31,670	£20,920	£27,568	£33,185
Pooled study sites: Mean income	£30,194	£29,552	£30,954	£25,733	£26,895	£29,652	£28,432	£27,298
Income ratio (Policy income / Study income)	0.8	1.0	0.7	1.3	1.2	0.7	1.0	1.2
Benefit transfer								
Policy site: Observed mean WTP	£4.47	£9.04	£4.97	£7.66	£12.35	£7.76	£8.06	£13.49
BT prediction: Pooled mean WTP from study sites, adjusted by income ratio	£6.37	£6.28	£5.37	£9.39	£10.48	£7.18	£10.91	£11.26
Difference (absolute)	£1.90	£2.76	£0.40	£1.73	£1.87	£0.58	£2.84	£2.23

| Transfer error | 42.4% | 30.5% | 8.1% | 22.6% | 15.1% | 7.4% | 35.2% | 16.5% |
| t-test: Difference significant at 5% level | No | No | No | No | No | No | No | No |

Table 5-20 Civic Building WTP: Reduced WTP regressions for value transfer

City	Town Hall Policy Sites				Library Policy Sites			
	Bolton	Exeter	Hudders-field	Norwich	Bristol	Hull	Lincoln	York
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Hudders-field Town Hall	Norwich City Hall	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library
Household income	0.490***	0.541***	0.476***	0.446***	0.452***	0.467***	0.513***	0.470***
Visited library more than once a month in last 3 years	0.806***	0.845***	0.874***	0.839***	0.881***	0.882***	0.859***	0.730***
Pre-industrial city (ref. category Industrial)	0.123	0.165	0.248**	0.178	0.214**	0.151	0.191*	0.169*
Constant	-3.862***	-4.425***	-3.854***	-3.493***	-3.584***	-3.670***	-4.159***	-3.713***
Observations	952	1038	1028	978	1000	954	968	1006
Adjusted R-squared	0.097	0.119	0.100	0.098	0.093	0.095	0.106	0.084

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

Table 5-21 shows the mean predicted WTP civic buildings based on fitting a regression model with the coefficients estimated in Table 5-20. Note that for each civic building policy site the regressions are based both on town hall and library study sites (however, as the difference between the two building types was not statistically significant, we dropped the corresponding control variable from the simplified model specification[97]). By increasing the available sample size, this approach yields more precise coefficient estimates. We note that the coefficient estimates are fairly stable across Table 5-20, in line with our assumption that that the characteristics included in the regression model have a uniform effect on WTP across all analysed sites. The results indicate that WTP for civic buildings tends to be higher in Pre-industrial cities compared with Industrial cities, and that the WTP for libraries tends to be higher for regular library visitors.

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97 The indicator variable controlling for building type (library vs town hall) was moderately correlated with the indicator of being a frequent library user, which could have contributed to its lack of statistical significance. However, it remained insignificant even when the frequent use indicator was excluded from the analysis, which formed the basis for excluding the building type control from the simplified model specification.

The function transfer errors for town halls reported in Table 5-21 vary between a high of 28% in the case of Huddersfield Town Hall and a low of 11% for Norwich City Hall. Compared to the adjusted unit transfer case, these errors are more in line with the acceptable range proposed in the literature – with all four sites safely below the 40% threshold. The mean difference between observed and predicted WTP is again not significant for any of the four town halls.

The function transfer errors for libraries reported in Table 5-21 vary between a low of 11% in the case of Lincoln Central Library and a high of 35% in the case of York Central Library. This range of errors is comparable with that obtained using adjusted unit transfer. The mean difference between observed and predicted WTP is again not significant for any of the libraries.

In sum, the error range for town halls is an improvement to that obtained through simple and adjusted unit transfer. This may indicate that the inclusion of both residents' income and the site characteristics in the function transfer specification has allowed to correct for the heterogeneity between town hall sites to a greater degree than the adjusted unit transfer approach based on income only. However, the inclusion of additional characteristics offered no significant improvements in terms transfer errors for libraries.

Despite the relatively low transfer errors, the reliability of WTP predictions based on the function transfer approach should be treated cautiously. The low explanatory power of the reduced WTP regressions for value transfer, as measured by the low adjusted R squared (below 12% across all civic buildings), means that these regressions are not successful at predicting the individual WTP values.

Table 5-21 Civic Building WTP: Function transfer errors

City	Town Hall Policy Sites				Library Policy Sites			
	Bolton	Exeter	Hudders-field	Norwich	Bristol	Hull	Lincoln	York
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Hudders-field Town Hall	Norwich City Hall	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library
Policy site: Observed mean WTP	£4.72	£8.45	£6.38	£8.54	£11.14	£8.02	£9.61	£15.78
BT prediction: Applying value transfer function coefficients from pooled study sites to mean policy site characteristics	£5.95	£6.97	£4.63	£7.65	£8.06	£6.84	£8.54	£10.24
Difference (absolute)	£1.23	£1.48	£1.75	£0.89	£3.09	£1.18	£1.07	£5.55
Transfer error	26.0%	17.6%	27.5%	10.5%	27.7%	14.8%	11.1%	35.1%

t-test: Difference significant at 5% level	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 model sample size corresponding to the included set of control variables. Regression model significant at p<0.005.

5.3.2.1 Summary

- **Historic libraries:** Simple unit transfer errors are at the threshold of what may be considered acceptable for libraries (at the 40% level), while adjustment for differences between the cities in terms of income and further site characteristics leads to a slight decrease in transfer errors across all sites, bringing it within the acceptable transfer error range. **We recommend that WTP values can be transferred to other historic public libraries with acceptable transfer error, and recommend the use of adjusted unit transfer which performs best when adjusted by socioeconomic information on the policy site of interest.**

- **Historic town halls:** Simple unit transfer errors are above the acceptable threshold for town halls. This may be driven by heterogeneity in the characteristics and physical condition of historic town halls, the socioeconomic status of residents in the cities they are located as well as other local factors. The inclusion of income data in the adjusted transfer brings the town hall transfer errors close to an acceptable range. Transfer errors for town halls improve further in the function transfer, which is able to control for more factors like visit frequency, and character (age) of the surrounding buildings. However, function transfer is also subject to low predictive fit and low sample size issues, which means that we do not recommend it for benefit transfer without careful consideration of the available data and potential modelling inaccuracies. **We recommend that WTP values for historic town halls can be used with caution for transfer to comparable sites, and only with use of income adjustments.**

6. Local Heritage Value Bank

- The WTP values collected in this study and tested for transfer error using a standard suite of transfer tests have been compiled into a Local Heritage Value Bank.

- The Local Heritage Value Bank presents pooled WTP values for local heritage sites – Pre-industrial and Industrial-era high streets, historic libraries and historic town halls - alongside the key findings from transfer testing to enable practitioners to apply the heritage values more widely in their value for money and business case calculations.

- Transfer tests show that:

   o **Simple unit transfer: Works best for transfer of value from a more homogenous set of sites, such as Pre-industrial cities.** WTP values for Pre-industrial cities can be transferred to comparable sites without any adjustments with relatively low risk of transfer error. The simple unit transfer also has lower informational demands on the analyst. That is, less information is required by the analyst.

   o **Adjusted transfer:** In all cases (excluding Pre-Industrial high streets), transfer errors improve once values are adjusted by the average household income of the local residents. It is likely that the adjusted transfer approach better accounts for the socioeconomic differences between the cities, and that once these differences are controlled for, the WTP values are more aligned across the sites, making them more robust for benefit transfer.

   o **Function transfer**, can improve transfer errors where variation is WTP is driven by factors like income, condition of the site, and whether it is Pre-industrial or Industrial-era in age. However, it also introduces uncertainty in terms of the predictive power of the regressions (all around 10%, which is probably   a consequence of sample size limitations). We therefore recommend that analysts adopt simple and adjusted unit transfer when applying these values to other high streets/civic buildings.

- 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.

The final Local Heritage Value Bank (Table 6-2) presents pooled WTP values for local heritage sites – Pre-industrial and Industrial-era high streets, historic libraries and historic town halls – set within the context of the wider DCMS and Arts Council England Economic Value Database. The table includes the key findings from transfer testing to enable practitioners to apply the heritage values more widely in their value for money and business case calculations (Table 6-1).

It is important to recall that statistical validity tests show that while WTP is driven by theoretically consistent factors such as income and indicators of engagement with heritage in the pooled models (combining sites within each of the four categories) giving good confidence in the robustness of the pooled WTP values to be used for benefit transfer, statistical tests were less robust for individual sites, where sample size limitations and missing data on income reduced the predictive power of statistical models. **For the purpose of benefit transfer, it is recommended that business cases use the more conservative lower bound WTP values. Lower bound WTP is estimated as the lower limit 95% confidence interval around the mean WTP. This is to account for the fact that mean WTP is likely to be inflated by the inclusion of direct use values for those who use the sites for services and possible insensitivity to scope. This means that average WTP may not be the most accurate estimate for external use, so we recommend taking the lower bound WTP for benefit transfer.**

Table 6-1 Historic England Local Heritage Value Bank: Key data for benefit transfer

Value of place Based on WTP values for heritage sites in Bolton, Bristol, Exeter, Huddersfield, Hull, Lincoln, Norwich, York.							
	1. Simple (unadjusted) transfer		2. Adjusted (income) transfer		3. Function transfer		
	WTP value	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
Historic High Streets - Pre-industrial	£9.29 (lower bound £7.80)	Yes	Household income of visitors (average): £31,469	Yes	Income: 0.451 High Street condition good: -0.462 Regular high street visitors: 0.235 Regression constant: -3.158	Yes	Low predictive power
Historic High Streets – Industrial-era	£8.51 (lower bound £6.31)	No	Household income of visitors (average): £26,978	No	Income: 0.451 High Street condition good: -0.462 Regular high street visitors: 0.235 Regression constant: -3.516	No	Low predictive power
Historic Town Halls	£7.29	No	Household income of	At threshold of acceptability	Income: 0.482 Pre-industrial city: -0.180	Yes	Low predictive power

					Regression constant: -3.847		
	(lower bound £5.73)		visitors (average): £29,401				
Historic libraries	£9.79 (lower bound £7.67)	Yes	Household income of visitors (average): £28,045	Yes	Income: 0.482 Regular library visitors: 0.837 Pre-industrial city: 0.180 Regression constant: -3.847	Yes	Low predictive power

The final Local Heritage Value Bank Table presents pooled WTP values for local heritage sites – Pre-industrial and Industrial-era high streets, historic libraries and historic town halls – set within the context of previous valuation estimates for heritage sites commissioned by the Arts and Humanities Research Council (AHRC). The table includes the key findings from transfer testing to enable practitioners to apply the heritage values more widely in their value for money and business case calculations (Table 6-2).

Table 6-2 Economic Value Database Table (with inclusion of local heritage benefit transfer values)

Population	Use/ Non-Use	Valuation Variable	Study site WTP (4 sites)	Max Transfer Error <40%	Acceptable transfer methods
Historic cities (Lawton et al. 2018 (AHRC))					
Resident/ Visitor	Use	One-off donation on behalf of their household to reduce the damage caused by climate change, improve the maintenance and conservation of the historic buildings in the city, and reduce the risk of irreparable damage and closure of those buildings currently open to the public	£9.63 (lower bound £8.56)	Yes	Simple, Adjusted, Function
Non-resident/ Non-Visitor	Non-Use		£6.14 (lower bound £5.36)	Yes	Simple, Adjusted, Function
Cathedrals (Lawton et al. 2018 (AHRC))					
Visitor	Use	One-off donation for their household to reduce the damage caused by climate change, improve the maintenance and conservation of the respective cathedral, and reduce the risk of irreparable damage and closure	£7.42 (lower bound £6.32)	Yes	Simple, Adjusted
Non-Visitor	Non-Use		£3.75 (lower bound £3.34)	Yes	Simple, Adjusted
Local Heritage (Historic England 2020)					
Historic High Streets (Pre-industrial)	Use	Annual donation on behalf of their household to a local trust to reduce the damage caused by climate change, improve the maintenance and conservation of the high street	£9.29 (lower bound £7.80)	Yes	Simple, Adjusted
Historic high Streets (Industrial-era)	Use		£8.51 (lower bound £6.31)	No	Values should not be applied
Historic Town Halls	Use	Annual donation on behalf of their household to a local trust to reduce the damage caused by climate change, improve the maintenance and conservation of the town hall	£7.29 (lower bound £5.73)	On threshold, treat with caution	Adjusted
Historic Libraries	Use	Annual donation on behalf of their household to a local trust to reduce the damage caused by climate change, improve the maintenance and conservation of the library	£9.79 (lower bound £7.67)	Yes	Simple, Adjusted

6.1   Worked example

In this section we provide a worked example to demonstrate how the values provided in the Local Heritage Value Bank of Table 6-2 could be applied to real-life business cases. We focus on its application to historic Pre-Industrial-era high streets but provide information for performing the same calculations with civic buildings in Table 6-3.

This worked example is a first attempt at providing direction on the way to include the social value of local heritage in a Social Cost Benefit Analysis. The guidance is therefore open to iteration as the Culture and Heritage Capital account programme develops and improves its methodologies.

Imagine that due to funding cuts, a local council is considering withdrawing financial support for a struggling town centre. The town centre has a high street which is home to a number of vacant buildings and the overall condition of the high street is starting to deteriorate due to lack of investment and vacant buildings. The high street contains several historic listed buildings, including some Pre-industrial buildings, which contribute to its historic character and sense of place. However, without investment or funding, these historic buildings will fall into poor condition and the historic character of the high street will be put at risk.

A stakeholder group, including Historic England and local resident groups, has made a presentation to the local council asking it to provide funding to maintain the historic buildings in good condition during this period of high vacancy rates of high street buildings. However, the council is unwilling to do so, arguing that the cost of maintaining these buildings is too high and does not produce enough public benefit to justify the investment.

We outline below the steps by which WTP values in the Local Heritage Value Bank can be applied to your own business case.

What you will need to know:

- **Initial scoping: How similar is your historic place (high street) to the high streets surveyed in the Local Heritage Value Bank:** overall age and character of architecture, size of the city, regional location.
- **Business case calculation:** Information about number of households within a reasonable local 'catchment area' around the high street.

6.1.1 Initial scoping

- **Step 1. Establish the overall age and character of the area**: Pre-industrial areas are those with the presence of some buildings built before 1800. Industrial-era areas of those with none or few buildings built before 1800. In the Local Heritage Value Bank, WTP values are only available for transfer for Pre-industrial high streets. If your high street can be characterised as Pre-industrial, proceed to Step 2.

- **Step 2. Size of city:** Values should only be transferred to Pre-industrial high streets in cities of a certain size: Populations of more than 100,000 and less than 400,000, to align with the cities surveyed in the Local Heritage Value Bank.

- **Step 3. Character of high street:** The high street should be one of the main shopping streets in the town, with a combination of national/regional shop chains and food and drink establishments.

There are a number of exclusions where institutions should not transfer WTP values for local heritage from the Local Heritage Value Bank:

- **National or regional capitals**: High streets in national or regional capitals may have higher visitor numbers, greater reach, and have architectural features of national or international significance. Demographic characteristics of regional capitals are often different to those of smaller towns and cities. These factors make high streets in national/regional capitals less comparable with the high streets in the Local Heritage Value Bank. Transfer of local heritage WTP values to these high streets may lead to under-estimation of economic value in business cases.

- **Seaside communities**: WTP for historic high streets are not applicable to seaside communities due to differences in demographic characteristics. Transfer of WTP values to high streets these towns will lead to mis-estimation of economic value in business cases.

- **Not applicable outside of England:** WTP values are collected for historic high streets in England only. Transfer of Local Heritage Value Bank WTP values to these high streets will lead to mis-estimation of economic value in business cases.

6.1.2 Business case calculation

If your high street passes the initial scoping exercise and can be considered comparable to the Pre-industrial high streets surveyed in the Local Heritage Value Bank, it is eligible to transfer the WTP value from the Local Heritage Value Bank to calculate the WTP for all households affected by the condition of the historic high street being at risk. We outline two approaches to benefit transfer that can be used in business cases: Simple unit transfer, which takes the WTP estimate from the Local Heritage Value Bank and applies it to the heritage place in your business case, and adjusted transfer, which is recommended if resident demographics for your heritage place are dissimilar to the sites used in the Local Heritage Value Bank, as this method accounts for and controls for differences in visitor/local population characteristics.

6.1.2.1 Simple unit transfer

To transfer simple WTP values from the Local Heritage Value Bank to your business case high street it is first necessary to define your affected local population. It is important that you select an appropriate catchment threshold for your local population. An unrealistically large catchment area will lead to over-estimation of heritage value in your business case, which will reduce the robustness of your results. Definition of the local population will differ depending on a case by case basis. It is to some extent subjective, but through continued engagement with the heritage sector we aim to improve the guidance for performing this analysis. The suggested approach is defined below:

- **Step 1. Define local area**: The appropriate local catchment area is typically defined as households within the direct Local Authority district where residents have heard of the high street or visited the high street in past three years. In most cases you will not have data on the number of residents who have heard of and visited the high street, so we advise taking the data from within this survey, which shows that 5% of those surveyed had either not heard of the high street or visited it less than once a year on average over the past three years. This means that 95% of the sample visited their local high street annually in the past three years. However, this frequency data is based on a three-year period, so as an approximation to annual values we recommend an additional cautious reduction of 10%, reducing the figure to *85% of the local population*. This annual approximation is slightly more cautious, but this is appropriate given the difficulty in defining the reach of a heritage site. It is important to avoid over-extending the local catchment area into the wider region, since extending the reach of your business case is the most common way in which value can be over-attributed, making business cases less robust.
- *For those calculating values for town halls and libraries, the proportions are different, at 65% and 75% respectively, as reported in Table 6-3.*
- **Step 2. Estimate number of households in the local area:** Once you have defined your local area, estimate how many households exist in this area. Public resources exist that take 2011 census data at the local authority, country and regional level (https://www.nomisweb.co.uk/query/select/getdatasetbytheme.asp?opt=3&theme=&subgrp=).
- **Step 3. Multiply number of households in your local area by the Pre-industrial high street WTP from the Local Heritage Value Bank.**
- Pre-industrial high street WTP from the Local Heritage Value Bank is £7.80 (lowerbound).
- **Step 4. Total (aggregate) non-market value of our high street to its local population is £379,740 per year** (final row Table 6-3). This value can be added to your business case alongside Gross Value Added (GVA) economic impact evaluations[98].Nevertheless, further work is required in the option analysis section of the business case. In this section different

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[98] However, if you have included valuations based on travel cost or house price uplift studies, then it is not recommended to add WTP values to your business case as this could lead to double counting of benefits.

alternatives to the main project are assessed, demanding a marginal analysis of the non-market value and GVA economic impact.

Table 6-3 Worked example: Simple benefit transfer from Local Heritage Value Bank to worked example case study (includes Pre-industrial high streets, town halls and libraries for reference)

	Local high street (Pre-industrial) WTP	Local town hall WTP	Local library WTP
WTP (lower bound)	£7.80	£5.73	£7.67
Households in Local Authority area	57,276	57,276	57,276
Proportion of local population who visited in the past year (based on survey data	85%	65%	75%
Affected population in Local Authority area (Population x proportion of annual visitors)	48,685	37,229	42,957
Aggregate Value	£379,740	£213,324	£329,480

Note: Numbers presented are unrounded, but in practical terms, given the uncertainty in the original estimates rounding to the first decimal point is reasonable for total values.

6.1.2.2 Adjusted unit transfer

This benefit transfer technique is recommendable to be used in the particular circumstance in which there is a significant socioeconomic difference between your site and the sites in the Local Heritage Value Bank:

➢ **Step 1**: **Compare average socioeconomic characteristics between your site and the sites in the Local Heritage Value Bank.** If your local area population has characteristics that significantly differ from the Local Heritage Value Bank it is recommended to use an adjusted benefit transfer. For example, imagine the average household income for your local area is 21% less (£24,759) than the average household income for the pooled sample in the Local Heritage Value Bank (£31,469). As the income difference is significant, it is recommended to adjust WTP. To adjust WTP, divide the average household socio-economic characteristic (i.e. income) of your local area by the average socioeconomic characteristic reported in the Local Heritage Value Bank.

➢ **Step 2: Multiply the answer by the simple WTP value in the Local Heritage Value Bank** (lower bound: £7.80). This gives an adjusted WTP value for visitors to your historic high street of £6.14.

➢ **Step 3. Multiply number of households in your local area by the adjusted WTP from the Local Heritage Value Bank:** As in Step 3 of the simple unit transfer. Assume in this example that the size of the population is 48,844.

➢ **Step 4. Total (aggregate) non-market value is £299,897 per year**. Again, this value can be added to your business case alongside GVA economic impact

evaluations[99].Nonetheless, further work is required in the option analysis section of the business case. In this section different alternatives to the main project are assessed, demanding a marginal analysis of the non-market value and GVA economic impact.

6.1.2.3   Overall principles of benefit transfer:

➢ **Evidence and assumptions used to define the local population must be clearly presented.** Where supporting empirical evidence is not available, justification should be provided for the definition of the local population in qualitative terms. See Eftec Valuing Environmental Impacts (2009) Report.

➢ **In all cases it is the responsibility of the business case analyst** to ensure that the catchment area is an accurate reflection of the reach of the high street and does not lead to over-attribution of values in the business case.

➢ **All applications of WTP values from the Local Heritage Value Bank should include caveats that the robustness of benefit transfer is dependent on adequate scoping** of the comparability between the site of interest and the heritage sites in the Local Heritage Value Bank, and that the principles of this worked example have been followed in full to reduce the risk of overestimation of values.

6.1.3   Other scenarios where you may want to apply the Local Heritage Value Bank

This report is primarily focused on the valuation of maintaining the condition of a historic high street or civic building in good condition. However, you may be faced with other scenarios, such as the potential loss of a historic civic building to make way for a major infrastructure development (for instance within the High Speed Rail scheme) or of a new development which drastically changes the historic character of a high street.

The values developed in this report are specific to the scenario of maintaining heritage sites in their current good condition, and cannot be automatically transferred to these other scenarios. In order to value these other types of scenarios, we strongly recommend new primary data collection to understand the willingness to pay for the specific value desired.

In an informal setting, statistical adjustments to the current Local Heritage Value Bank could be used to construct an approximation of the public value associated with loss of a heritage site under these alternative scenarios. However, we stress that this data is likely to lead to distorted values because of the large differences between a scenario of maintenance and a scenario of complete loss of the heritage site. We recommend that this kind of work be performed with advice from experts with an economic and statistical background.

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[99] However, if you have included valuations based on travel cost or house price uplift studies, then you should not add WTP values to your business case as this would lead to double counting of benefits.

6.2   Methodological considerations

A critical point for benefit transfer of heritage values relates to the specificity of estimates. Cultural heritage values have a strong local nature, grounded in specific local context. For instance, the characteristics that make a historic high street valuable to its local population will be partly driven by factors that are very specific to that area. This is particularly important among user populations of residents and visitors. For instance, the cultural heritage value of Stonegate in York may be shaped both by the historic buildings/structures, and their interaction with local pride, shared history, and its independence and interdependence with wider national histories and cultural narratives. Contextual differences may also be based on the role of each city as a site for ongoing cultural events, and the everyday sense of place that it provides to people going about their daily activities. The interaction between the historic structures and the cultural place-making role of one city may be heterogenous to those of another city which on paper has historical structures of broadly similar age and historical significance. This heterogeneity in the cultural values associated with each of the local heritage sites surveyed may be difficult or impossible to quantify within a benefit transfer model, which therefore limits their transferability to other study sites. The same is true of civic buildings. It may be that our surveyed study sites are similar in age, architecture, and artefacts, but they may have played very historically-specific and place-specific roles in the cultural heritage of the people who live around them. This unobserved heterogeneity of place-specific cultural values will be internalised within the maximum WTP values that respondents give for each of the sites. However, the variance in WTP values caused by place-specific cultural values remains unobserved. The challenge going forward, therefore, is in identifying and quantifying these place-specific cultural values in a way that is meaningful and comparable across multiple sites and to include the data within a function transfer model.

We exclude respondents who have not heard of the high street or civic building to exclude pure 'non-users' with no potential use or spillover value. This is expected to increase the realism of the WTP values, since pure non-users have been found to struggle in the cognitive task of distinguishing a good/service they have never heard of or used from the general 'virtuous' value of cultural heritage as a whole.[100] However, we note that this does introduce difficulty in the aggregation process, since the sample excludes those in the local population who have not heard of the site, and who we would expect to have lower WTP values on average. For this reason, it may be more appropriate to apply a lower bound WTP value when aggregating to the local population. Note that respondents were excluded based on whether they had heard of the site by name. It may be that they would have been familiar with the site if they had been shown an image or it. Therefore, some of those excluded as 'pure non-users' may in fact have recognised the site by sight, and would then not have had a statistically lower WTP than the current survey sample. We

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100 Bandara and Tisdell 2005

recommend that future applications of this method test for familiarity with the site with the use of both names and photographs.

A relatively high proportion of respondents stated that they were not willing to pay in principle to maintain their historic high street in good condition (46% for Pre-industrial high streets and 62% for Industrial-era high streets) and similar results were found for historic civic buildings (53% for historic town halls and 51% for historic libraries. We note that it is common to have a higher proportion of respondents not be willing to pay in principle for a public good which they currently enjoy for free, due to a number of factors, such as household budget constraints, endowment effects (they are accustomed to receiving it for free) or simply not valuing heritage that highly among the numerous other public goods and services that they may feel are valuable enough to pay to preserve. Previous studies on historic regional cities found that around one third of the sample were not willing to pay in principle to preserve their historic city core, with similar findings from other CV studies for in the cultural sector (e.g. 20-30% in the Natural History Museum/Tate Liverpool study performed as part of the AHRC Cultural Value Project).[101] The high proportion not willing to pay in principle in this study could suggest that the public has a lower likelihood of being willing to pay for smaller local an heritage sites compared to those with more regional reach and importance. However, further data collection would be required to understand the relationship between levels of engagement with local heritage sites and the way they are valued by their local populations, and this may be an important area for future research.

It is important to consider the realism of the values obtained. In terms of how these values compare, we note, that the values obtained for the historic high streets are only 34p lower than the WTP values obtained for historic town centres in a previous BT study [102]. This is not what we would expect, given that the high street will only be a partial element of the wider historic core. Furthermore, the WTP given for the historic city is in the form of a one-off donation, whereas WTP for the historic high street is a recurring annual donation. We would expect that a one-off donation would be higher, representing the welfare benefits that a respondent would feel over their lifetime, compared to a recurring donation which has a higher net present value. Finally, some of these cities and high streets overlap between the studies (e.g. York historic core and Stonegate high street in York). This would suggest some insensitivity to the scope of what is being valued, i.e., that respondents are not distinguishing between the value they hold for the whole city centre versus one of its parts. This could partly be explained by a non-use 'warm glow' motivation behind the values given, where a respondent's stated WTP is more an expression of their support for the heritage of the city than for the specific high street valued. Indeed, follow up question around their motivations for being willing to pay found that over a third (35%) of those with a positive WTP were

101 https://ahrc.ukri.org/research/fundedthemesandprogrammes/culturalvalueproject/

102 Lawton et al. 2018

paying "not just for the high street, but also an expression of my support for all heritage in the city" (Appendix Table 8-10).

This is despite repeated statements in the survey that respondents should express their value only for the high street. The problem of insensitivity to scope within CV surveys is persistent, and something which future surveys should seek to explore further, to better understand how respondents can be made to think only of the site being valued, rather than the wider heritage public good being discussed.

Insensitivity to scope may also be present in the closeness of the WTP values for civic buildings and high streets. Again, we would expect WTP for a larger site like a high street, which contains multiple historic buildings, to be higher than WTP for a single historic building. However, the closeness of the values could be explained by the more iconic character of the town hall compared to other historic buildings. Note that none of the town halls were located within the high street valued, and respondents were asked to consider them as entirely separate payments. Nonetheless, we should acknowledge that this lack of proportionality may also stem from biases in SP surveys around insensitivity to scope in respondents' stated WTP. However, it is important to consider in a balanced way the likely impact that such information effects and biases will have on the reliability of the benefit transfer to business cases. First, it is very difficult to evidence for certain that people are valuing heritage as a whole rather than the value of a particular site, and follow-up questions are an unreliable and inaccurate way to gather this, as they may be subject to response acquiescence (selecting any response to proceed to the next stage of the survey). To fully understand the motivations behind WTP requires a much more involved set of questioning and analysis of the results, which requires a much longer survey which is beyond the scope of this study. Second, excluding a large portion of the sample based on these uncertain motivational responses is an extreme approach which would severely impact on the sample size and the predictive power of the transfer testing models. A more proportionate response in the face of the motivational uncertainty is to take a lower bound WTP value when applying the values in business cases, as we do in this study.

6.3   Benefit transfer summary recommendations

To conclude, we summarise the main advantages and disadvantages of the three benefit transfer methods below, with Table 6-4 outlining our recommendation as to the contexts in which these benefit transfer methods work best.

A **simple unit value transfer** is the simplest form of transfer and assumes that the per person (or household) WTP at the study site is equal to that at the policy site and requires the same or similar quantity of the good. Any scaling up or down of the benefits to account for quantity differences requires strong assumptions – for example, that the benefits are linear with respect to quantity (Johnston et al. 2017). Unit value transfers can also be adjusted according to attributes of

the policy context or by using expert opinion. An **adjusted value transfer** is different from a **benefit function transfer** as the adjustments are done ex-post rather than by using a function provided by the original study. The key consideration on whether to use a simple or adjusted value transfer is whether the assumptions needed for adjustments are reasonable.

The advantages of unit value transfer compared to benefit function transfers are ease of implementation and minimal data requirements. If the study and policy sites are very similar, then unit value transfers can perform acceptably [103]. However, the assumptions implied can lead to larger errors than those with similar benefits functions transfers (Kaul et al. 2013; Rosenberger and Stanley 2006), as we found for historic town halls and Industrial-era high streets in this study.

To perform benefit function transfers, it is necessary to have a function which allows the outcome to be estimated through observed conditions at the policy site and to have good quality information on the relevant variables. It also requires strong assumptions that the underlying valuation function is identical in the study and policy sites. Benefit function transfers are helpful as they can be used to adjust transfer estimates for differences of characteristics between the policy and study sites such as the quantity or quality of the good valued or characteristics of the population (Johnston et al. 2017). However, the data requirements are higher than with value transfers and function-based adjustments, for example adjusting for socioeconomic characteristics, will not always improve transfer accuracy (Brouwer 2000; Johnston and Duke 2010; Spash and Vatn 2006). In sum:

- Simple unit value transfers are best suited if initial scoping suggests the policy site is similar to the study site in terms of services offered, size and reach, and characteristics of visitors.
- Adjusted unit transfers are recommended when sites are similar but differ in characteristics or visitors/local populations, particularly in income levels.
- Benefit function transfers are better suited for policy sites that are heterogenous to their study sites. 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. It is not recommended to use benefit function transfers when there are few differences to adjust between the sites and if the value functions have low explanatory power.

Transfer testing in this report allows us to make conclusions about the most appropriate transfer method for each category of local heritage values. Benefit transfer testing of the heritage sites

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surveyed in this study finds that the Pre-industrial high streets, historic libraries and historic town/civic hall WTP values can be transferred to comparable historic sites across the country with low risk of introducing transfer error. As is always the case with benefit transfer methods, it is necessary to acknowledge that some error will be introduced when transferring values. We have therefore made efforts to label clearly in the reporting and in the table below which WTP values for local heritage sites values are robust for benefit transfer and under which methods.

- For **Pre-industrial high streets** transfer errors are safely below the acceptable level of transfer error using any of the three transfer methods. We therefore conclude that WTP values for Pre-industrial cities can be transferred to comparable sites with relatively low risk of transfer error.
- **Historic libraries:** Transfer errors are at or below the acceptable levels of transfer error for simple and adjusted transfer. We therefore conclude that WTP values for historic libraries can be transferred to comparable sites with acceptable risk of transfer error using these two methods, but do not recommend function transfer.
- In some cases, such as **town halls**, acceptable levels of transfer error are achieved only with adjustment to the income differentials between towns (adjusted transfer method). Caution should be applied when transferring these values, and only with consideration of the income differences between the study town hall sites and the site you are constructing your business case for.
- Even more caution should be applied to **Industrial-era high streets**, where transfer errors were outside of the acceptable level with all transfer methods. We recommend that Industrial-era high street WTP should not be transferred to other sites, as the WTP values varied too much between the four sites surveyed to provide a robust WTP value that can be considered representative of other Industrial-era high streets in the country. We therefore recommend that these WTP values be seen only as indicative of the values that people hold for these four particular Industrial-era high streets, and not for Industrial-era high streets as a whole.

The benefit transfer values obtained for Pre-industrial high streets and civic buildings are relevant within the context of the wider DCMS and Arts Council Economic Value Database. This aims to bring together recent primary data collection on people's willingness to pay for cultural institutions and heritage sites and apply transfer tests to this data, to provide a robust evidence base for arts and cultural organisations. These values for historic high streets and civic buildings will help to grow this database, providing a valuable resource of heritage values for the cultural sector.

The challenge for Historic England is to stimulate the take up of valuation techniques and the use of the values estimated with this approach, particularly among heritage organisations seeking public investment and funders such as local authorities that may be considering business cases on a regular basis. This may be achieved through cross-cutting work with other agencies like Arts Council England, engagement activities in the heritage sectors, and workshops showcasing the valuation work that Historic England does and how it can be applied to further the heritage sector's understanding of how to value their sites and construct business cases that incorporate a fuller economic value of their cultural contribution to society. This knowledge will provide an advantage in a competitive funding environment where funders are looking for a clearer and more robust rationale than ever to invest in the preservation of local heritage.

Table 6-4 Benefit transfer summary and recommendations

		Simple unit transfer	Adjusted unit transfer	Function transfer
Data availability / requirements		No additional data required	Only aggregate data on the adjusted characteristic at policy and study sites required	Transfer function needs to be estimated at study sites; Corresponding data for policy site required to make prediction
	Low	✓	✗	✗
	Medium		✓	✗
	High			✓
Similarity between policy and study sites		High degree of similarity required	Difference in a single characteristic (usually income levels) may be adjusted	Differences in multiple characteristics may be adjusted to produce more context-sensitive benefit transfers
	High	✓	✗	✗
	Medium		✓	✗
	Low			✓
Homogeneity of the **good valued** across study sites		High degree of similarity required	High degree of similarity required; Adjustment usually based on population not site characteristics (i.e. population income)	Differences can be controlled (and their impact measured, provided that site-specific data exists and that there is sufficient heterogeneity between study sites) through transfer function
	High	✓	✓	
	Low	✗	✗	✓
Homogeneity of the **population characteristics** across study sites		High degree of similarity required	Assumes that heterogeneity between sites is a function of socioeconomic differences in populations. Income differences can be adjusted ex-post	Differences can be controlled (and their impact measured, provided there is sufficient heterogeneity between study sites) through transfer function.

		Simple unit transfer	Adjusted unit transfer	Function transfer
				High homogeneity will lead to higher transfer errors in function transfer.
	High	✓		✗
	Medium		✓	
	Low			✓
Assumptions required to perform the transfer (as tested by t-tests in benefit transfer testing)		Per person (or household) WTP at the study site is equal to that at the policy site	Per person (or household) WTP scaled by the adjustment variable at the study site is equal to that at the policy site	Transfer function is identical in the study and policy sites
Recommendations				
	Policy site is similar to the study site in terms of services offered, size and reach, and characteristics of users/non-users	✓	✗	✗
	Policy site different from study sites in terms of a small number of characteristics (particularly income)	✗	✓	✗
	Policy site different from study sites in terms of multiple characteristics (whose impact on WTP has been measured)	✗	✗	✓
	Transfer functions have low explanatory power	NA	NA	✗

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8. Appendix A. Summary statistics and statistical WTP analysis

Figure 8-1 Sample size and survey type by city (high street, left; civic buildings, right)
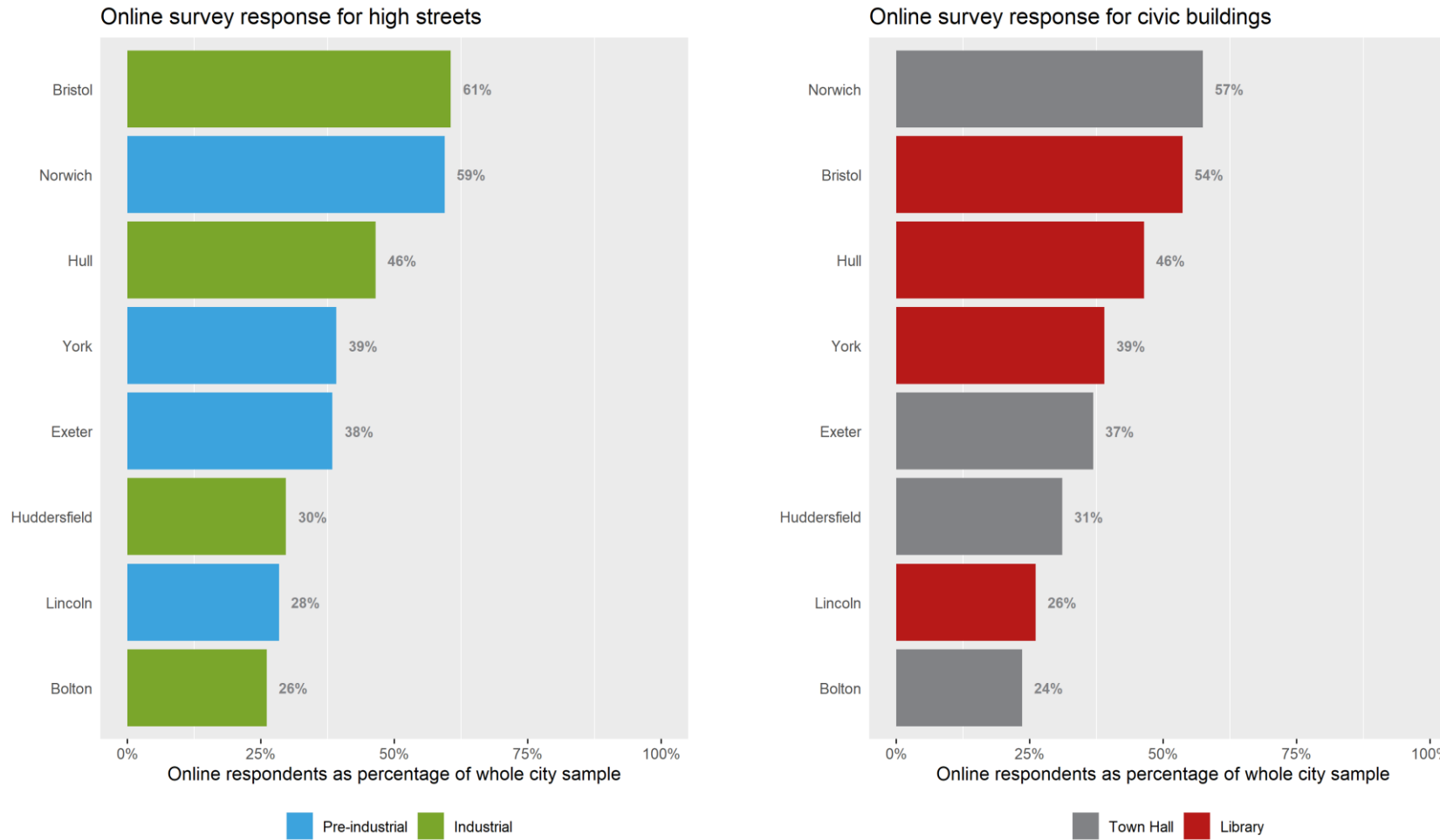
Table 8-2 Socio-demographic characteristics – weighted according to high street weights

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Hudders-field	Hull	Total: Industrial-era
Female	52.1%	51.7%	51.5%	50.0%	51.6%	51.2%	51.1%	48.2%	50.3%	50.1%
Age (mean)	50 (1.42)	49 (2.23)	49 (2.32)	47 (1.70)	49 (1.10)	46 (1.47)	41 (2.12)	45 (1.70)	44 (1.60)	44 (0.91)
Household annual income (£, mean)	£29,646 (3154.58)	£28,383 (2456.42)	£35,123 (1862.67)	£31,985 (2298.82)	£31,469 (1319.06)	£24,162 (1314.00)	£37,535 (3218.81)	£21,979 (1796.85)	£21,147 (1247.13)	£26,978 (1128.52)
Dependent children under 16 years (% (n/N)	21.5%	24.5%	23.6%	34.9%	24.1%	32.4%	26.0%	34.1%	23.7%	29.3%
Married/ with partner (% n/N)	40.7%	45.4%	44.3%	41.4%	43.3%	32.9%	30.2%	39.5%	29.7%	33.4%
University education (% n/N)	36.1%	28.0%	33.2%	44.4%	33.5%	17.6%	47.8%	18.4%	26.2%	28.9%
In employment (full-time, part-time, self-employed) (% n/N)	47.4%	55.3%	56.5%	58.1%	53.6%	47.2%	67.7%	61.9%	42.8%	57.0%
Current resident of city (% n/N)	28.3%	14.4%	23.0%	29.5%	22.7%	6.5%	25.5%	15.9%	6.6%	15.2%

Notes: "Current resident of city" refers to people who currently live in the respective city as opposed to people who have lived in the respective city in the past but no longer live there.

Table 8-3 Socio-demographic characteristics – weighted according to civic building weights

City	Bolton	Exeter	Hudders-field	Norwich	Total: Town halls	Bristol	Hull	Lincoln	York	Total: Libraries
Female	51.2%	52.1%	48.2%	51.5%	51.1%	51.1%	50.3%	51.7%	50.0%	51.1%
Age (mean)	46 (1.34)	50 (1.51)	45 (1.73)	49 (1.89)	49 (0.95)	41 (2.15)	44 (1.55)	49 (2.30)	47 (1.70)	46 (1.30)
Household annual income (£, mean)	£25,084 (1273.21)	£28,948 (3696.63)	£21,427 (1754.70)	£34,221 (2199.22)	£29,401 (1365.63)	£31,670 (2763.66)	£20,920 (1250.51)	£27,568 (2374.06)	£33,185 (2311.73)	£28,045 (1312.43)
Dependent children under 16 years (% (n/N)	31.7%	20.9%	33.6%	23.0%	25.2%	24.9%	21.9%	22.9%	36.3%	24.9%
Married/ with partner (% n/N)	33.4%	38.2%	38.6%	46.1%	40.7%	27.1%	27.8%	45.8%	42.0%	37.6%
University education (% n/N)	19.3%	36.5%	17.7%	31.8%	29.6%	50.0%	28.7%	27.1%	43.7%	35.3%
In employment (full-time, part-time, self-employed) (% n/N)	46.9%	44.6%	67.0%	56.5%	53.2%	62.3%	42.8%	53.4%	56.5%	54.4%
Current resident of city (% n/N)	6.0%	28.2%	16.2%	20.1%	20.5%	23.7%	6.9%	14.3%	27.5%	17.2%

Notes: "Current resident of city" refers to people who currently live in the respective city as opposed to people who have lived in the respective city in the past but no longer live there.

Figure 8-4 High street WTP (£ per household per year) - histograms and kernel density estimates: pre-industrial (left), industrial-era (right) to show distribution of WTP values within sample
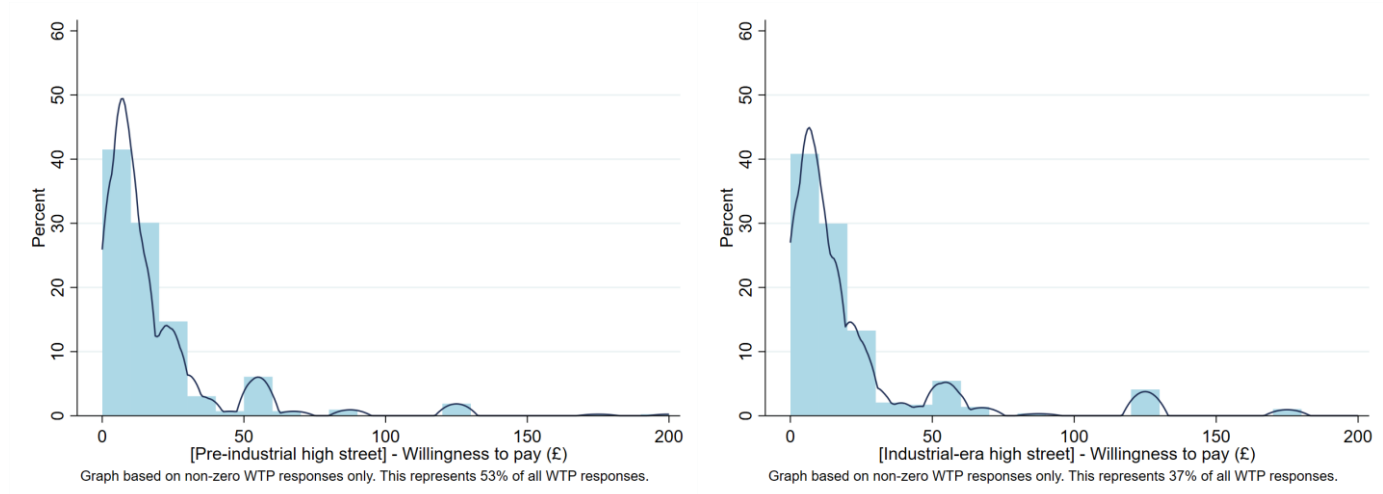

Graph based on non-zero WTP responses only. This represents 53% of all WTP responses.

Graph based on non-zero WTP responses only. This represents 37% of all WTP responses.

Figure 8-5 Civic building *WTP (£ per household per year) - histograms and kernel density estimates:* town halls *(left),* libraries *(right) to show distribution of WTP values within sample*

Graph based on non-zero WTP responses only. This represents 46% of all WTP responses.

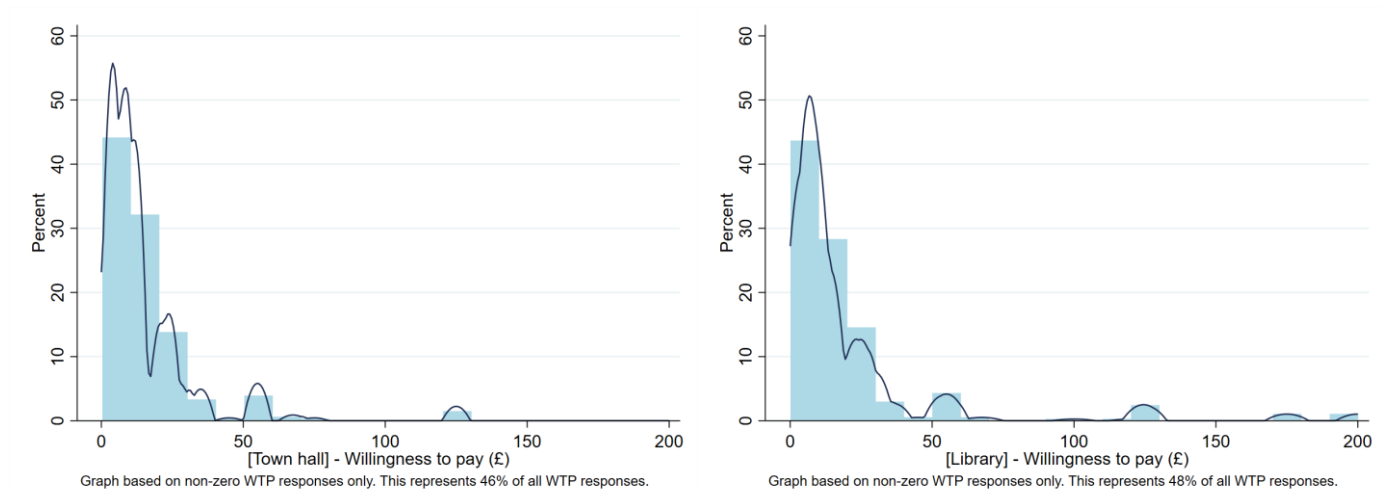Graph based on non-zero WTP responses only. This represents 48% of all WTP responses.

Table 8-6 Full household WTP table for historic high streets

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Huddersfield	Hull	Total: Industrial-era
Site	The High Street	The High Street	Pottergate / Bedford Street	Stonegate		Churchgate / Deansgate	Corn Street/ Clare Street	King Street	Whitefriar-gate	
Mean (std. err.)	£9.60 (£1.40)	£8.61 (£1.36)	£8.74 (£1.28)	£13.07 (£2.77)	£9.29 (£0.76)	£10.56 (£2.65)	£11.63 (£2.34)	£3.34* (£1.25)	£9.28* (£2.81)	£8.51* (£1.12)
Lower confidence interval (CI) (95%)	£6.84	£5.92	£6.20	£7.59	£7.80	£5.32	£7.02	£0.88	£3.73	£6.31
Higher confidence interval (CI) (95%)	£12.35	£11.30	£11.27	£18.54	£10.77	£15.80	£16.24	£5.80	£14.83	£10.71
Median	£2.25	£0.38	£2.75	£3.50	£2.25	£0.00	£0.00	£0.00	£0.00	£0.00
Max	£125.0	£200.0	£125.0	£125.0	£200.0	£175.0	£175.0	£125.0	£175.0	£175.0
Zeros (total sample)	48.0%	50.0%	44.0%	44.0%	47.0%	60.0%	52.0%	78.0%	60.0%	63.0%
Payment card zeros	3.5%	1.2%	2.5%	2.1%	2.4%	2.6%	1.7%	2.1%	6.1%	2.9%
Sample size	203	225	175	171	774	180	203	148	200	731

Table 8-7 Full household WTP table for historic civic buildings

City	Bolton	Exeter	Huddersfield	Norwich	Total: Town halls	Bristol	Hull	Lincoln	York	Total: Libraries
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Huddersfield Town Hall	Norwich City Hall		Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	
Mean (std. err.)	£4.47* (£0.80)	£9.04* (£1.78)	£4.97* (£1.23)	£7.66* (£1.23)	£7.29* (£0.79)	£12.35 (£2.12)	£7.76 (£1.99)	£8.06 (£1.74)	£13.49 (£2.78)	£9.79 (£1.08)
Lower confidence interval (CI) (95%)	£2.89	£5.53	£2.55	£5.22	£5.73	£8.16	£3.84	£4.62	£8.00	£7.67
Higher confidence interval (CI) (95%)	£6.05	£12.56	£7.39	£10.09	£8.84	£16.54	£11.67	£11.50	£18.99	£11.91
Median	£0.00	£2.25	£0.00	£0.00	£0.00	£2.75	£0.00	£0.00	£2.25	£0.00
Max	£125.0	£125.0	£125.0	£125.0	£125.0	£200.0	£125.0	£200.0	£200.0	£200.0
Zeros (total sample)	66.0%	48.0%	58.0%	54.0%	54.0%	44.0%	63.0%	54.0%	48.0%	52.0%
Payment card zeros	5.2%	2.4%	0.0%	3.0%	2.6%	2.5%	2.2%	3.5%	0.9%	2.7%
Sample size	195	187	164	188	734	179	196	203	154	732

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

Table 8-8 Factors associated with High Street WTP

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Huddersfield	Hull	Total: Industrial-era	Total
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate		Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate		
Female	-0.115	0.051	0.232	-0.181	0.019	-0.317	-0.315	0.075	-0.592**	-0.353***	-0.120
Log age, using age midpoint	0.431	0.389	0.334	-0.041	0.351**	-0.246	0.431	0.090	-0.363	0.045	0.222*
Household income (log)	-0.068	0.120	0.337**	0.650***	0.231**	0.300	0.516***	0.145	0.625***	0.412***	0.319***
Degree qualification or higher (ref=A-levels or below)	0.083	-0.025	0.322	-0.263	0.186	0.943***	0.364	0.292	-0.176	0.401***	0.270***
Member of heritage, conservation or environmental organisation	0.769**	-0.254	0.437*	0.619**	0.333**	0.031	0.252	0.562	0.016	0.144	0.252*
Visited last 12 months - Historic building open to the public (non-religious)	0.054	0.720***	-0.313	0.157	0.116	0.873***	0.085	0.247	0.684*	0.405***	0.202*
Selected heritage or arts in Top 5 of public spending	0.116	0.403	0.829***	0.950***	0.585***	0.017	0.037	-0.075	-0.034	0.052	0.356***
(Strongly) Agree to 'it is important to preserve the historic character of our cities'	0.493	0.387	0.653*	0.841***	0.339	-0.027	1.047***	0.113	1.053***	0.537***	0.376***
Thinks high street is in good condition (ref=fair or poor condition)	-0.535*	-0.200	-0.727***	-0.675***	-0.532***	0.036	-0.439	-0.435**	0.430	-0.222	-0.395***
Visited Highstreet more than once a month in last 3 years	-0.042	0.609*	0.466**	0.021	0.244	-0.210	0.050	0.522**	0.226	0.129	0.182*
Pre-industrial City (ref=Industrial-era)											0.306***

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Survey model: F2F (ref=online)	-0.058	-0.259	0.211	-0.063	0.011	0.275	-0.194	-0.730***	-0.287	-0.171	-0.067
Constant	-0.055	-2.541*	-4.482***	-5.892***	-3.026***	-1.461	-6.664***	-1.363	-4.561***	-3.871***	-3.604***
Observations	103	175	141	139	558	162	155	95	181	593	1151
Adjusted R-squared	0.017	0.101	0.252	0.383	0.146	0.208	0.129	0.281	0.185	0.161	0.156

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

Table 8-9 Factors associated with Civic Building WTP

City	Bolton	Exeter	Huddersfield	Norwich	Total: Town halls	Bristol	Hull	Lincoln	York	Total: Libraries
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Huddersfield Town Hall	Norwich City Hall		Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	
Female	0.016	0.004	-0.080	0.130	-0.022	-0.115	-0.304	-0.317	0.301	-0.249
Log age, using age midpoint	-0.218	0.132	-0.028	-0.319	-0.139	0.599	-0.191	0.111	-0.662**	0.004
Household income (log)	0.227	0.055	0.318	0.427***	0.312***	0.604***	0.558***	0.062	0.485***	0.393***
Degree qualification or higher (ref=A-levels or below)	0.485*	-0.070	-0.374	0.219	0.107	0.005	-0.169	-0.041	0.100	-0.022
Member of heritage, conservation or environmental organisation	-0.479	0.452	0.718**	0.674*	0.516**	-0.085	-0.331	-0.260	0.337	-0.054
Visited last 12 months - Historic building open to the public (non-religious)	0.339	-0.178	0.076	-0.400	-0.145	0.363	0.655**	0.828***	0.324	0.589***
Selected heritage or arts in Top 5 of public spending	0.231	0.517	0.342	0.805***	0.673***	0.066	0.173	0.590**	0.373	0.313**
(Strongly) agree to 'historic buildings should be preserved for future generations'	0.790***	0.050	0.285	-0.156	-0.072	0.016	0.224	0.296	0.887***	0.283
Thinks town hall is in good condition (ref=fair or poor condition)	0.230	-0.240	-0.340	-0.087	-0.101	0.301	-0.230	0.383	-0.312	0.109
Visited town hall more than once a month in last 3 years	0.034	0.485	-0.048	0.950**	0.329	0.737*	0.729**	0.638*	1.256***	0.789***
Pre-industrial City (ref=Industrial-era)					0.132					0.138

Survey model: F2F (ref=online)	-0.196	-0.333	-0.418	0.233	-0.061	-0.334	-0.232	-0.354	0.465*	-0.310*
Constant	-1.738	-0.089	-2.039	-2.318	-1.798	-7.342***	-4.024**	-0.615	-2.902*	-3.359***
Observations	179	94	102	154	529	131	176	164	126	597
Adjusted R-squared	0.082	-0.019	0.205	0.237	0.153	0.131	0.140	0.201	0.330	0.190

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

Table 8-10 Reasons given for WTP/ Not WTP for High Street

WTP Categories	%
[High Street] contains buildings which should be preserved for their historical and architectural interest	36.23%
Visiting [High Street] is an important part of my everyday life	6.06%
High streets are important sites of historical value that should be protected	19.01%
I don't believe that I would really have to pay	0.96%
My willingness to pay is not just for [High Street], but also an expression of my support for all heritage in [City]	34.99%
Other (please specify)	1.65%
Don't know	1.10%
Total	726
Not WTP Categories	**%**
I have more important things to think about than preserving high streets	6.74%
I cannot afford to pay to maintain [High Street]	32.95%
I don't agree with charging the public to help maintain private buildings in [High Street]	15.90%
I am already contributing to maintaining historic buildings through my taxes	6.87%
I need more information to answer this question	4.07%
There are other high streets in [City] that have greater historic value	0.76%
I already agreed to pay to before and do not want to make another payment	0.64%
Contributing to the upkeep of the [High Street] should come from local taxes	23.41%
Other (please specify)	5.85%
Don't know	2.80%
Total	786

*Note these statements catch those respondents that are contradictory in their answers

Table 8-11 Reasons given for WTP/ Not WTP for Town hall

WTP Categories	%
I like visiting / I enjoyed my visit to [Town Hall]	9.44%
Visiting [Town Hall] is an important part of my everyday life	4.13%
[Town Hall] is an important site of historic value that should be protected	63.42%
I don't believe that I would really have to pay	2.65%
My willingness to pay is not just for [Town Hall], but also an expression of my support for all town halls	14.75%
Other (please specify)	2.06%
Don't know	3.54%
Total	339
Not WTP Categories	**%**
I have more important things to think about than [Town Hall]	11.63%
I cannot afford to pay to maintain [Town Hall]	30.94%
I need more information to answer this question	5.69%
I would prefer the town hall services to be provided in a modern building	1.24%
There are town halls closer to my home that I would rather pay to protect	0.74%
I do not think the historic [Town Hall] building is of good enough quality to deserve additional funds	3.96%
I already agreed to pay to before and do not want to make another payment	2.23%
Contributing to the upkeep of the [Town Hall] should come from local taxes	33.17%
Other (please specify)	5.94%
Don't know	4.46%
Total	404

*Note these statements catch those respondents that are contradictory in their answers

Table 8-12 Reasons given for WTP/ Not WTP for Library

WTP Categories	%
I like visiting / I enjoyed my visit to [Library]	13.95%
Visiting [Library] is an important part of my everyday life	6.05%
[Library] is an important site of historic value that should be protected	40.79%
I don't believe that I would really have to pay	2.11%
My willingness to pay is not just for [Library], but also an expression of my support for all public libraries	33.16%
Other (please specify)	3.42%
Don't know	0.53%
Total	380
Not WTP Categories	%
I have more important things to think about than [Library]	11.11%
I cannot afford to pay to maintain [Library]	39.17%
I need more information to answer this question	2.22%
There are libraries closer to my home that I would rather pay to protect	4.44%
I do not think the historic [Library] building is of good enough quality to deserve additional funds	1.11%
I already agreed to pay to before and do not want to make another payment	3.33%
Contributing to the upkeep of the [Library] should come from local taxes	27.78%
Other (please specify)	9.72%
Don't know	1.11%
Total	360

*Note these statements catch those respondents that are contradictory in their answers

Table 8-13 Reasons for WTP based on condition of high street

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Huddersfield	Hull	Total: Industrial-era
Site	The High Street	The High Street	Potter-gate / Bedford Street	Stone-gate		Church-gate / Deans-gate	Corn Street/ Clare Street	King Street	Whitefriar-gate	
The historic buildings are in bad/poor/fair condition and need to be improved	23.1% (25/108)	22.8% (29/127)	21.7% (23/106)	20.0% (18/90)	28.9% (210/726)	41.1% (30/73)	29.5% (31/105)	27.8% (10/36)	54.3% (44/81)	28.9% (210/726)
The historic buildings are in good condition and should be kept that way	69.4% (75/108)	72.4% (92/127)	66.0% (70/106)	67.8% (61/90)	61.3% (445/726)	52.1% (38/73)	57.1% (60/105)	52.8% (19/36)	37.0% (30/81)	61.3% (445/726)
Other	3.7% (4/108)	1.6% (2/127)	1.9% (2/106)	2.2% (2/90)	2.3% (17/726)	2.7% (2/73)	1.0% (1/105)	2.8% (1/36)	3.7% (3/81)	2.3% (17/726)
Don't know/rather not say	3.7% (4/108)	3.1% (4/127)	10.4% (11/106)	10.0% (9/90)	7.4% (54/726)	4.1% (3/73)	12.4% (13/105)	16.7% (6/36)	4.9% (4/81)	7.4% (54/726)

Table 8-14 Reasons for not WTP based on condition of high street

City	Exeter	Lincoln	Norwich	York	Total: Pre-industrial	Bolton	Bristol	Huddersfield	Hull	Total: Industrial-era
Site	The High Street	The High Street	Pottergate / Bedford Street	Stonegate		Church-gate / Deansgate	Corn Street/ Clare Street	King Street	Whitefriar-gate	
The historic buildings are already in good condition and do not need to be improved	38.7% (41/106)	32.4% (33/102)	41.3% (31/75)	31.1% (28/90)	39.3% (326/829)	39.3% (44/112)	35.3% (36/102)	76.7% (92/120)	17.2% (21/122)	39.3% (326/829)
The historic buildings are in bad/poor/fair condition and I do not want to pay to improve them	18.9% (20/106)	21.6% (22/102)	21.3% (16/75)	25.6% (23/90)	23.9% (198/829)	23.2% (26/112)	15.7% (16/102)	10.0% (12/120)	51.6% (63/122)	23.9% (198/829)
Other	30.2% (32/106)	18.6% (19/102)	12.0% (9/75)	23.3% (21/90)	18.7% (155/829)	20.5% (23/112)	23.5% (24/102)	7.5% (9/120)	14.8% (18/122)	18.7% (155/829)
Don't know/rather not say	12.3% (13/106)	27.5% (28/102)	25.3% (19/75)	20.0% (18/90)	18.1% (150/829)	17.0% (19/112)	25.5% (26/102)	5.8% (7/120)	16.4% (20/122)	18.1% (150/829)

Table 8-15 Reasons for WTP based on condition of civic building

City	Bolton	Exeter	Hudders-field	Norwich	Total town halls	Bristol	Hull	Lincoln	York	Total libraries
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Hudders-field Town Hall	Norwich City Hall		Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	
The historic buildings are in bad/poor/fair condition and need to be improved	22.9% (16/70)	31.0% (31/100)	25.7% (18/70)	11.1% (11/99)	22.4% (76/339)	31.4% (22/70)	31.9% (37/116)	34.0% (33/97)	46.5% (33/71)	35.4% (135/381)
The historic buildings are in good condition and should be kept that way	72.9% (51/70)	62.0% (62/100)	67.1% (47/70)	73.7% (73/99)	68.7% (233/339)	20.0% (14/70)	37.9% (44/116)	13.4% (13/97)	22.5% (16/71)	23.4% (89/381)
Other	1.4% (1/70)	4.0% (4/100)	1.4% (1/70)	3.0% (3/99)	2.7% (9/339)	21.4% (15/70)	13.8% (16/116)	22.7% (22/97)	11.3% (8/71)	17.8% (68/381)
Don't know/rather not say	2.9% (2/70)	3.0% (3/100)	5.7% (4/70)	12.1% (12/99)	6.2% (21/339)	27.1% (19/70)	16.4% (19/116)	29.9% (29/97)	19.7% (14/71)	23.4% (89/381)

Table 8-16 Reasons for not WTP based on condition of town hall or library

City	Bolton	Exeter	Hudders-field	Norwich	Total town halls	Bristol	Hull	Lincoln	York	Total libraries
Site	Bolton Town Hall	Exeter City Council (Guildhall)	Hudders-field Town Hall	Norwich City Hall	📄	Bristol Central Library	Hull Central Library	Lincoln Central Library	York Central Library	📚
The historic buildings are already in good condition and do not need to be improved	59.1% (75/127)	33.7% (31/92)	79.6% (74/93)	39.5% (34/86)	52.1% (223/428)	31.4% (22/70)	31.9% (37/116)	34.0% (33/97)	46.5% (33/71)	35.4% (135/381)
The historic buildings are in bad/poor/fair condition and I do not want to pay to improve them	10.2% (13/127)	25.0% (23/92)	10.8% (10/93)	24.4% (21/86)	16.1% (69/428)	20.0% (14/70)	37.9% (44/116)	13.4% (13/97)	22.5% (16/71)	23.4% (89/381)
Other	22.8% (29/127)	32.6% (30/92)	3.2% (3/93)	14.0% (12/86)	18.7% (80/428)	21.4% (15/70)	13.8% (16/116)	22.7% (22/97)	11.3% (8/71)	17.8% (68/381)
Don't know/rather not say	7.9% (10/127)	8.7% (8/92)	6.5% (6/93)	22.1% (19/86)	13.1% (56/428)	27.1% (19/70)	16.4% (19/116)	29.9% (29/97)	19.7% (14/71)	23.4% (89/381)

Table 8-17 Library WTP - sensitivity to visit frequency

	Not regular visitors	Regular visitors (at least once a month)	Total
Town hall WTP: Mean (std. err.)	£6.74 (£0.64)	£11.47 (£4.40)	£7.31 (£0.78)
Library WTP: Mean (std. err.)	£10.58 (£2.03)	£21.13* (£3.04)	£14.51 (£1.71)

Table 8-18 WTP - Order effects

	Civic building first	High street first	Total
WTP high streets - Pre-industrial: Mean (std. err.)	£6.33* (£0.82)	£13.04* (£1.37)	£9.72 (£0.82)
WTP high streets – Industrial-era: Mean (std. err.)	£6.17* (£1.36)	£9.72* (£1.63)	£8.05 (£1.07)
WTP town hall: Mean (std. err.)	£8.28 (£1.18)	£6.65 (£1.22)	£7.43 (£0.85)
WTP libraries: Mean (std. err.)	£10.52 (£1.66)	£9.19 (£1.44)	£9.84 (£1.10)

Table 8-19 WTP – Survey mode effects

	Online	F2F	Total
WTP high streets - Pre-industrial: Mean (std. err.)	£8.20 (£0.94)	£10.08 (£1.12)	£9.29 (£0.76)
WTP high streets – Industrial-era: Mean (std. err.)	£8.82 (£1.79)	£8.30 (£1.44)	£8.51 (£1.12)
WTP town hall: Mean (std. err.)	£8.42 (£1.63)	£6.52 (£0.72)	£7.29 (£0.79)
WTP libraries: Mean (std. err.)	£7.96 (£1.84)	£10.87 (£1.33)	£9.79 (£1.08)

9. Appendix B. Benefit transfer methodology

There are two main approaches to BT in the literature[104]. The first is based on a transfer of a known benefit to another site; the second on the transfer of a function containing characteristics of the users and non-users of a site, as well as the characteristics of the site and possibly the study methodology, and how much these characteristics are associated with the valuation of the cultural and heritage goods in question. The first can be split into two sub-approaches, a straightforward value transfer and a transfer weighted by the relative incomes of the user and non-user groups.

We test these approaches to assess the validity of BT within our four case study institutions. 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 others as the "study" site. In this section, we summarise these approaches. Transfer WTP on an institution by institution basis: unit value transfer and adjusted unit value transfer

This method is based on single point transfer estimates. Unit value transfer methods test the equality of mean WTP values at the policy site and the study site.

(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*

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

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).[105]

9.1   Value Function Transfer: Transfer adjusted WTP from pooled data

(iii) Benefit function [106] 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 tailored benefit function is then used to predict the benefits for the policy site [107]:

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 7 is estimated for the study sites whereby 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 [108]. 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

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105 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.

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

107 Rosenberger and Loomis 2003

108 Brouwer and Spaninks 1999

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

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 in order 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 8 to predict WTP at the policy site [109]. 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 historic high street and civic building.

9.2   Transfer error testing

A number of transfer tests have been proposed to test the predictive power of BT. The statistical validity of benefit transfer is based on the assumption 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.[110] Here, we compare estimates of transfer error to established ranges within the literature.[111] Ready and Navrud[112] 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 errors as

109 Bateman et al. 2011

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

111 Mourato et al. 2014; Navrud and Ready 2007

112 Ready and Navrud 2006

high as 100-200%, particularly when involving complex goods. For the purpose of 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.[113]

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 9-1).

Table 9-1 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	$H2: \dfrac{1}{a_p}\overline{WTP}_p = \dfrac{1}{a_s}\overline{WTP}_s$ 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.

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113 Ready and Navrud 2006

Notes: $\overline{WTP_p}$, $\overline{WTP_s}$ = average WTP at policy (p) and study (s) sites; $\overline{Y}_p$, $\overline{Y}_s$ = average household income at policy and study side respectively; $e = 1$; b = coefficients obtained from WTP function estimated at study sites; and $\overline{X}_p$ = 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.

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

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