Victorian Heritage Valuations

Practical Valuation Guide

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Authors
Ben White, Prof. Mikołaj Czajkowski, SurveyEngine GmbH

This addendum provides guidance on using the Victorian Heritage Willingness-to-Pay models for various types of valuation.

1 Relative Valuation of Assets

When wishing to compare the heritage value of two or more different heritage assets in different conditions.

method:

Calculate the total WTP for each asset by summing the marginal WTP values for each attribute.

Note:

All attributes values should be used in the WTP calculation. Omission of any value may lead in incorrect values

2 Marginal Improvement Valuation

When making a decision which set of improvements or protections for an an object yield the best value

method:

Calculate the 'status quo' WTP by summing all attribute WTP. Then recalculate the WTP for each of the improvement scenarios e.g. traffic control, register inclusion etc. The scenario with the highest WTP will have the best overall value.

3 Portfolio Valuation - by an individual

When wishing to calculate the WTP an individual would place on a portfolio of assets e.g. a building, a Streetscape and a set of historic objects.

In this case we instead calculate a lower and upper bound. The true portfolio value will lie between these two values.

Lower bound calculation method

The total WTP for the portfolio should not be lower than the asset with the maximum WTP. Using the asset with the highest WTP will establish a lower bound on total WTP

Upper bound method

The upper limit of the portfolio WTP can be calculated by assuming that the maximum portfolio WTP will not be greater than the asset with the highest WTP (as above) plus the per number of assets WTP for the number of assets in the portfolio.

NOTE: Naively adding the WTP for each asset together and multiplying by catchment is likely to greatly overvalue total WTP. This is because all the models show very small incremental estimates of 'number' of protected assets for the same type of asset. This is expected to hold for different types of assets.

4 Absolute WTP estimation

When it is required to place an absolute WTP value to compare (for example) demolition or replacement of a heritage asset.

Since the models estimate a WTP at an individual level, calculating an absolute WTP involves addition of the individual WTP values to a group of individuals. Selection of the group size, typically as from catchment population data. Such a calculation will be particularly sensitive to the catchment chosen and should be performed with caution.

method

The 'Relevant Population' method of determining catchment is common is such valuations. In this method, a catchment is judiciously chosen such that only people that are affected by the decision are included in the calculation (Bateman *et al.*, 2004; Champ, Boyle and Brown, 2017) .

Since we know that people's WTP for an additional item is very small (we assume zero), we can infer the relevant catchment for any project considered as the population for whom the distance to the site considered in the project would be lower than the distance to a close substitute. In other words, a catchment should only consider people who are closer to the heritage asset under consideration for, than to another heritage asset. Further that this consideration be the only one occurring within a one year period.

example

For example, a council decision on whether to demolish a local church and sell the land would involve a catchment of the local council rate-paying population only (assuming there was only one church)

In this case, the heritage WTP could be calculated as such: If the church was of local significance, had public access, was built in 1900's and in good condition (-$52 +$30 +$21 +$33) and the average distance to the church was 10 km (a marginal WTP of -$2.96) yielding a total WTP of $29. If the council population was 20,000. WTP could be estimated at $29 x 20,000, yielding a WTP of $480,000.

NOTE: WTP estimates should not be used for catchments larger than 100km radially. Catchments should not be larger that the next available asset substitute and the estimations are only valid for a single asset within a one year period.

Note also that when the number of assets in the portfolio exceeds 10, being the limit of the models, either this number should be used in place as the maximum or other valuation methods.

5 Calculation of Total WTP for Victoria

The 2017 Model results have limitations

Calculations of Victoria-Wide WTP using the main 2017 study models should be taken with care as critical parameters of number of places protected and distance to the asset are likely to be out of bounds for extrapolation. The 2017 models permit estimations for number of protected places to a maximum of 10 at a maximum distance of 100km.

This merely imposes a maximum extrapolation range and therefore a conservative estimate of state-wide WTP. It is instructive to use the two replication which do explore the ranges of number of places protected above 1000 – abeit with different comparison restrictions. We can apply the portfolio valuation method to each of the study results as below and compare them.

These results are calculated using the portfolio valuation method above and using assumptions about average distances in the calculations section below.

For the purposes of comparison, two optimal assets were used in the valuation (a Lighthouse and a Gallery), the 2005 ACG study makes no differentiation of asset type so, ceteris paribus, the models are assumed to encompass all attributes as the 2017 main study.

	2017 Main Lighthouse	2017 Main Gallery	2017 Replication	2005 Original ACG
MIN WTP (individual)	$227.21	$246.05	$240.31	$481.07
MAX WTP (individual)	$256.01	$246.05	$251.59	$494.52
Adult Population (Millions)	$4.60	$4.60	$4.60	$3.70
MIN WTP (VIC) – Billions	**$1.05**	**$1.13**	**$1.11**	**$1.78**
MAX WTP (VIC) – Billions	**$1.18**	**$1.13**	**$1.16**	**$1.83**

6 Calculations

Calculation of the average distance from a heritage asset in Victoria. This assumes an even distribution of assets and the geometry of each unit area containing an asset is square.

Distance Calculations

Average Asset Distance – Land	
Number of assets	2,432
VIC area (km2)	237,630
Area per asset (km2)	98
Average distance from asset (km)	**2.8**

Calculation of the average distance from a coastal heritage asset in Victoria. This assumes all assets are on the perimeter of a square of equivalent are to the state of Victoria.

Average Distance Calculation – Coastal	
VIC area (km2)	237,630
Equivalent Square dimensions (km)	487
average distance from coast (km)	244

Calculation of Max individual WTP from 2017 Main Study

Two candidate asset cases are considered – a Building and a Landscape.

Case 1 – Building

Assumes a single asset with all optimal WTP settings at the average asset land distance.

Attribute	Unit WTP
Gallery	$26.23
19th century (1803-1900)	$45.86
Excellent condition	$70.75
State Significance	$21.67
No permit required for interior alterations	$27.69
Control of noise	$14.19
Control of traffic	$17.13
Public access - for commercial purposes	$23.55
Number of places (per additional)	$0.00
Asset WTP	**$247.07**
average distance (km)	2.8
distance WTP	-$1.02
TOTAL SINGLE ASSET WTP	**$246.05**
Marginal WTP for 10 places	$0.00
TOTAL MAXIMUM ASSET WTP	**$246.05**

Case 2 – Landscape

Note in this case as the asset is always coastal – the distance WTP is larger than a land asset.

Attribute	Unit WTP
Lighthouse	$85.06
19th century (1803-1900)	$77.69
Excellent condition	$42.49
National Significance	$2.04
No permit required for interior alterations	$7.52
Control of traffic	$20.81
Public access - free	$24.92
Number of places (per additional)	$3.20
Asset WTP	**$263.72**
average distance (km) *note using max valid distance (100km)*	100
distance WTP	-$36.52
TOTAL MINIMUM ASSET WTP	**$227.21**
Marginal WTP for additional 9 places	$28.80
TOTAL MAXIMUM ASSET WTP	**$256.01**

Calculation of WTP from Replication Studies

Calculation of total WTP is acheived by calculating the increased utility and therefore WTP from the change from no asset to the maximum number of assets at the greatest positive change at the optimal WTP.

2017 replication					
Attribute	**Current Level**	**Change**	**Implicit Price Per Person**	**Units of attribute change**	**Annual Aggregate**
Places protected from loss	0	2432	$4.64	Per 1000	$11.28
Proportion of sites in good condition	20%	80%	$0.33	Per 1% increase	$26.40
Age Mix (proportion of sites over 100 years old)	80%	20%	$0.14	Per 1% reduction	$0.00
Proportion of places accessible to the public	10%	90%	$1.86	Per 1% increase	$167.40
Development control		Only minor modifications permitted	$46.51		$46.51
TOTAL Individual WTP					**$251.59**

2005 ACG Study					
Attribute	**Current Level**	**Change**	**Implicit Price Per Person**	**Units of attribute change**	**Annual Aggregate**
Places protected from loss	0	2432	$5.53	Per 1000	$13.45
Proportion of sites in good condition	20%	80%	$1.35	Per 1% increase	$108.00
Age Mix (proportion of sites over 100 years old)	80%	20%	-$0.20	Per 1% reduction	-$4.00
Proportion of places accessible to the public	10%	90%	$3.60	Per 1% increase	$324.00
Development control		Only minor modifications permitted	$53.07		$53.07
TOTAL Individual WTP					**$494.52**

7 Methodological Notes

A critical component of determining the total economic value is defining the relevant population of individuals (Bateman et al., 2004; Champ, Boyle and Brown, 2017). While the simple answer to this might seem to be that anyone who values the change should be included, the relevant population typically depends on the context of the study, and is determined by whether use values (e.g., people who actually get to see a protected object) or also non-use values should be included (with non-use or policy-specific values known to be relatively insensitive to the scope of the change). Segerson (2017) notes that whether a regional or more local measure of benefits is appropriate depends on how the policy decision will be made. If policymakers are willing to adopt the policy as long as benefits exceed the costs that the region would incur (even if local benefits do not), then the benefit measure should be at the regional scale. However, if policymakers will base their decision on whether the local community will realise a net benefit, a more localised measure of benefits is needed.

Most studies use geopolitical boundaries such as a city, county, or region to define the relevant study population. As Boyle (2017) notes, “the literature provides little guidance for selecting study populations (those who are affected by the change), but two points of consideration are useful. First, geopolitical boundaries are useful for identifying locations affected by the change being valued and those who will pay for the change to be implemented. Second, a spatially referenced sample will allow for an investigation of how value estimates change with distance from the affected area.” Aggregation of benefits over larger areas is therefore additionally complicated by the fact that values often decrease or increase with distance and this can affect the magnitude of aggregate welfare calculations (Hanley, Schläpfer and Spurgeon, 2003; Bateman et al., 2006).

Holmes, Adamowicz and Carlsson (2017) suggest that the geographic scope of a study would include consideration of whose values are to be included in the valuation or benefit-cost analysis. Despite administering the survey to citizens of Victoria, it is likely that only the local population would be impacted by changes in policy – at least with respect to use value of the changes. In addition, the location of substitute sites is important and, especially that as revealed by our results, the WTP function is very elastic with respect to the number of places protected. As a result, it is reasonable to expect that WTP of people who have a close substitute to the considered item available at a closer distance would be much lower. We therefore suggest assuming that their WTP is equal to zero, and only summing over the population who is closer to the considered site, than a site that can be considered a close substitute.

8 References

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