APPENDIX 6: STUDIES OF WILLINGNESS TO PAY FOR UNPRICED AMENITIES

INTRODUCTION

In context of this inquiry we may slice the topic two ways:
• willingness to pay for national parks and nature conservation, versus willingness to pay for arts and cultural institutions;
• willingness to pay for direct use through user charges, versus willingness to pay for non-use benefits (option value, existence value, bequest value etc.) through general taxation.[1]

The 'travel cost method' referred to in the main text (paragraph 5.12) estimates willingness to pay for direct use through user charges. Other methods mentioned just below can estimate willingness to pay for use or for non-use benefits.

Willingness to pay for direct use of excludable public goods through user charges can of course be tested by experiment, as with market goods. We may still want an estimate by other means because - 1. taking a charge from nothing to something is less a marginal change than a quantum leap, which requires political commitment and may have unpredictable results; 2. the politically acceptable limit to a charge may be less than full willingness to pay by an amount which it would be interesting to know; 3. these goods (particular national parks and museums) are to a large extent one of a kind in regional markets, so analogies with past experience elsewhere may be unreliable; 4. the 'merit good' aspect means that we do not wish to discourage visitation by accidentally charging too much.

It is logically arguable that the community/non-use benefits of a publicly subsidised public good are, by definition, at least as great as the net public subsidy, assuming the community is acting rationally in approving the subsidy.[2] One purpose of independent techniques of estimation is to test the assumption that the community is acting rationally. Another purpose is to estimate the value of non-use benefits (such as existence value, bequest value) whose value is not necessarily related to, and could be much greater than the current maintenance costs or opportunity costs which appear in a public subsidy.[3]

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[1] People may also pay for non-use benefits through voluntary personal donation. The stated dichotomy assumes that because of free-rider problems this behaviour will be either negligible or at least a poor guide to true willingness to pay.

[2] For example, it is sometimes said that in strict economic terms 'too much' is spent on rural local roads. A *logical* answer is that this simply proves that the community values the less quantifiable benefits (reducing isolation, parity of services between city and country...) highly. This of course assumes that the expenditure represents a true community consensus rather than simply the successful lobbying of special interests ('rent-seeking'), and this is the focus of most political debate on such questions.

[3] For example, a family heirloom might have high existence value and bequest value, yet its current maintenance cost or resale value (opportunity cost) might be near zero. Note that 'bequest value' is the current generation's willingness to pay *in order to bequeath*; it is *not* a prediction of how much subsequent generations will value what they inherit from us. That we cannot know.

Note that all these methods treat willingness to pay (observed or estimated) as the *measure* of the value ('satisfaction', 'utility') to individuals of the benefits that the individuals are (or would be) paying for.[4] They do not address (and do not claim to address) arguments that involve other possible meanings of 'value' - for example, whether the 'intrinsic' value of biodiversity is infinite; whether it is proper to 'reduce' ineffable values to dollars and cents; whether a valuation by the community as a body corporate could or should be different from the sum of individual valuations.[5] As well, there is the question of whether different people's willingness to pay should be weighted to account for their different incomes.[6]

Studies of non-use values of environmental goods are now common and no attempt is made to list any here (see for example Carson et al. 1995).

Some studies of willingness to pay for direct use of some particular Australian **national parks and historic sites**, which came to the Committee's notice during the inquiry, are mentioned below as examples of this genre. No thorough search was attempted. True willingness to pay to visit national parks may vary greatly from one to another, and estimates of willingness to pay may also differ depending on the detailed assumptions of the particular survey; so the figures mentioned below should *not* be regarded as representative.

Studies of willingness to pay for **arts and culture** (whether for use or non-use benefits) seem to be comparatively rare. Those that came to the Committee's notice during the inquiry are mentioned below. No thorough search was attempted. Most relate to 'the arts' generally (which in some studies included museums and galleries, in others did not). We assume relevant analogies, but the differences between subsidised performing arts and museums/galleries should not be neglected - see main text, pragraph 5.90ff.

Reference: Carson R T, Wright J, Carson N, Alberini A & Flores N, *A Bibliography of Contingent Valuation Studies and Papers*, Natural Resources Damage Assessment, La Jolla California, 1995

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[4] Of course allowance must be made for external benefits or detriments (benefits or detriments from an act of production or consumption which accrue to third parties without compensation), but this does not affect the question of defining 'value'.

[5] This implies 'merit good' arguments.

[6] A rich person may be willing to pay some high price for a good, yet may gain only modest satisfaction from it; a poor person may be willing to pay (that is, can afford) only a low price, yet may gain great satisfaction. Thus, summing willingness to pay in nominal dollars gives disproportionate weight to the preferences of richer people. This problem, unlike the problems arising from different meanings of 'value', can be handled within the survey methodology if desired.

TECHNIQUES OF ESTIMATION

'Several mechanisms have been developed to measure the value of benefits when market data are not available. The mechanisms include **hedonic pricing** (Rosen 1974), which uses direct and indirect market data to draw inferences about related commodities, and the use of techniques such as **conjoint analysis** (Louviere 1988) and **contingent valuation** (Fisher 1994; Mitchell and Carson 1989) which uses surveys to identify stated preferences of individuals in the context of hypothetical markets for the commodity...

'The **contingent valuation** technique... was first applied by Davis (1963) who used questionnaires to estimate the benefits of outdoor recreation. Since then the technique has undergone extensive development and has been used in numerous empirical studies (see Carson et al. 1995)... During the past decade the method has begun to be increasingly applied to the measurement of non-use or existence values and total values which may include a substantial proportion of passive-use (or non-use) values.

'The application of contingent valuation surveys to measure **passive-use [ie non-use] value**, mainly in relation to environmental damage reparation, has generated extensive critical debate among economists... In an attempt to resolve the controversy, the National Oceanic and Atmosphere Administration (NOAA) of the United States of America appointed a panel of eminent persons, co-chaired by economics Nobel Laureates Kenneth Arrow and Robert Solow, to consider the reliability of contingent valuation estimates of passive-use value of natural resources. The panel concluded that, by following certain recommended guidelines, the methodology 'can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values' (NOAA 1993).

'The applicability of contingent valuation surveys to the measurement of **use values** derived from non-market commodities is more widely acknowledged, particularly in relation to quasi-private goods and in situations where respondents are clearly aware of, and are familiar with the benefits accruing to them...'

Papandrea F, *Measuring Community Benefits of Australian TV Programs*, Bureau of Transport and Communications Economics occasional paper 113, Canberra 1996, p2-4. Reference: Carson R T, Wright J, Carson N, Alberini A & Flores N, *A Bibliography of Contingent Valuation Studies and Papers*, Natural Resources Damage Assessment, La Jolla California, 1995

'Economists have developed two forms of methods of valuing these non-market use [benefits] and non-use benefits, ie revealed preference methods and stated preference methods. Revealed preference methods are those that rely on consumers and producers revealing their willingness to pay through their behaviour. The main revealed preference techniques are product market approaches, property market approaches, the travel cost method and defensive expenditures. Stated preference techniques are those that rely on survey to enable respondents to state their willingness to pay. The main stated preference technique is the contingent valuation method. Generally it is considered that revealed preference techniques are more reliable than stated preference techniques since they are based on observable behaviour.'

Christiansen G, *Economic Value of Recreational Use: Hartley Historic Site*, NSW National Parks & Wildlife Service, 1997, p8

**WILLINGNESS TO PAY FOR PUBLIC SERVICES
GENERALLY THROUGH TAXATION**

Withers G, Throsby D & Johnston K, *Public Expenditure in Australia*, Economic Planning
and Advisory Commission paper no. 3, Oct. 1994

Surveyed people's desires for more or less public expenditure in 16 categories.

> 'It is found that the broad level of public expenditure is in line with taxpayers' wishes
> in Australia. However, there is also evidence that, on average, taxpayers might prefer
> some rearrangement of the composition of our public outlays. In particular, the new
> survey results indicate a desire for more environmental outlays and increased
> expenditures on roads, education, police, retraining and sport and recreation.... These
> increases would be offset by desired reduction in general government administration,
> defence, family assistance and unemployment outlays....' [p ii]

Perception of benefits from current outlays

Q1. How much do you think the Australian community as a whole benefits at present from the
following government services?
Q2 How much do you feel that you as an individual and members of your immediate
household... benefit at present from these same services?

Table 3.1 % of respondents nominating 'a reasonable amount' or 'a lot' of benefit to...

	...community	...self/household
public transport	68	29
police, law & order	69	53
roads	61	64
national defence	44	27
arts and public broadcasting	53	47
sport and recreation	63	36
environment	46	43
medical and hospital	57	57
education	64	40
housing	51	13
unemployment	74	12
retraining	41	8
age pensions	71	17
family assistance	56	13
industry assistance	31	5
general govt administration	41	17

Preferences for adjustment of current outlays

> 'There is substantial support for increased government expenditure. Areas particularly
> favoured for increase include medical and hospital services, education and police.
> Areas where there are significant number of respondents favouring a decrease in
> expenditure include general government administration, national defence and
> unemployment benefits, though it should be noted that in both of the last two cases,

there is still a majority of respondents preferring the same or increased expenditure....'
[p32]

Q8. 'Do you think governments should spend more or less money on the following?... Recognise that answers to this question might affect the level of taxes. That is, if overall you wanted to see an increase or decreased in **total** government spending, this might result in an increase or decrease **in your own taxes**.'

Table 3.2 Preferences for adjustment to government outlays: % of respondents favouring...

	...decrease	...same	...increase
public transport	8	36	55
police, law & order	3	22	74
roads	5	27	67
national defence	28	35	36
arts and public broadcasting	22	50	28
sport and recreation	18	52	30
environment	5	24	71
medical and hospital	3	12	84
education	3	19	78
housing	11	40	49
unemployment	26	47	27
retraining	11	31	59
age pensions	4	39	57
family assistance	4	29	67
industry assistance	11	37	51
general govt administration	61	31	8
unweighted mean	14	33	53

Q9. 'If all these changes [the changes that the respondent nominated] resulted in an increase in your own taxes, would you be willing to pay more tax, assuming everyone else also pays for the changes they nominate?'

not willing to pay more	16.7 per cent
would pay a little more	57.7 per cent
would pay whatever was required	22.7 per cent
don't know	3.0 per cent

Quantitative willingness to pay

'The responses discussed in the previous section were based on respondents' preferences formed without reference to their actual current tax liabilities.... When respondents are advised of their actual tax liabilities, their expenditure preferences might change...' [p33] [Respondents, having stated their taxable income bracket, were shown an estimate of how their total tax payment is distributed amongst the 16 areas, and asked to suggest preferred changes.]

Q10a. 'Given that this card shows the approximate amounts that you currently pay, I want to ask you how much you would **prefer to see** paid from your taxes for each area of government expenditure. Remember that if the **total** of the amounts you decide on finally adds up to more or less than the total amount you currently pay, **your own taxes would increase or decrease accordingly**.'

Table 3.3 Quantitative willingness to pay compared with actual tax liability

	mean actual liability ($)	mean willingness to pay ($)	desired increase ($)	desired increase as per cent of actual
public transport	370	377	7	2
police, law & order	437	488	51	12
roads	253	325	72	28
national defence	679	546	-133	-20
arts & public broadcasting	121	129	8	7
sport and recreation	52	81	29	56
environment	64	144	77	115
medical and hospital	1649	1648	-1	-
education	1221	1284	63	5
housing	295	294	-1	-
unemployment	405	352	-53	-13
retraining	64	102	38	59
age pensions	747	777	30	4
family assistance	1104	1064	-40	-4
industry assistance	351	348	-3	-1
general govt admin.	628	442	-186	-30
total	8443	8404	-42	- <.5

'The results indicate a willingness to pay more for environmental outlays, the highest category in terms of both dollar and percentage increase...with preferred aggregate tax liability remaining much the same.' [p33-4]

Rationale for government intervention

'The survey sought to establish [in four of the areas of government spending] whether consumers as a whole agree with the standard rationales put forward for government intervention in the market economy...' [p35] [namely:

• **public goods/externalities:** intervention to correct for the market's failure to provide sufficient quantity or quality of 'public goods'

• income **redistribution** for equity purposes, eg by providing services for low income groups

• compensation for dysfunctional **capital markets**

• **'intrinsic merit':** ie 'merit good' arguments that governments should try to influence patterns of consumption in cases where consumers may be irrational or ill-informed

• **option demand/ existence value:** markets may fail to provide means for expressing preferences to conserve a good for possible consumption at a later date.

'...In all cases externality, public good and merit good elements were seen as present. But in education and health equity concerns were relevant, as distinct from an emphasis on option demand for environment and arts.' [p35-6]

Table 3.4 percentage of respondents 'strongly agreeing' or 'agreeing' with each rationale				
rationale	education	health	environment	arts
public goods/ externalities	96%	94%	91%	77%
distribution	98%	93%	na	na
capital markets/ risk	79%	74%	na	na
intrinsic merit/ overriding preferences	88%	79%	90%	82%
option demand/ existence value	na	na	90%	97%
na = not applicable				

WILLINGNESS TO PAY TO VISIT PARTICULAR NATIONAL PARKS

Readers are reminded that 'average (mean) willingness to pay = $X' does *not* mean all visitors are willing to pay $X. Some visitors are willing to pay more, some less. A charge of $X would cause the loss of visitors whose limit of willingness to pay is less than $X. The extent of this loss depends on the exact distribution of willingness to pay among the group of visitors. For example, if the total willingness to pay was composed of a few people willing to pay much more than $X, and many people willing to pay a little less than $X, a charge of $X would discourage most visitors.

Bennett J, *Economic Value of Recreational Use: Gibraltar Range and Dorrigo National Parks*, NSW National Parks & Wildlife Service, Sydney 1995

Used the travel cost method to survey willingness to pay for recreational use of Dorrigo National Park and Gibraltar Range National Park (both of which have free entry).

Dorrigo national park: average willingness to pay (= consumer surplus in this case, starting price being zero; = 'economic value of recreational use'): $34 per visit ($17 if those willing to pay more than $99 are disregarded[7]);
Gibraltar Range national park: average willingness to pay: $19 ($15).

'It is conceivable that the annual recreational use value for the [Dorrigo national] park will not stay constant over time. Most likely it will rise. The principal factors that would drive such a trend are • increasing population levels; • increasing average real incomes; • a continuation of the shift in preferences toward outdoor recreational activities.' [p20]

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[7] It is normal to disregard the few very high bids, since otherwise these would pull up the average (mean) figure to a misleading extent.

Christiansen G, *Economic Value of Recreational Use: Hartley Historic Site*, NSW National Parks & Wildlife Service, 1997

Used the travel cost method to survey willingness to pay for recreational use of Hartley Historic Site (which has free entry). Estimated average consumer surplus (= willingness to pay in this case) as $38 per visitor (allowing for vehicle costs only) or $50 per visitor (allowing also for the cost of travel time).

Driml S M, *Sustainable Tourism in Protected Areas?: an ecological economics case study of the Wet Tropics World Heritage Area*, PhD thesis, Australian National University, Canberra 1996, p224ff

Used the travel cost method to survey willingness to pay for recreational use of the Wet Tropics World Heritage Area. Surveyed Australian non-local visitors. Tried out several sets of assumptions: the 'preferred' methodology ('WTB4') is referred to here.

Table 8.18: Predicted demand for entry to Wet Tropics World Heritage Area at hypothetical entry fees [among the survey sample, by method 'WTB4']

entry fee	predicted visitor-days	predicted visitor-days as percentage of prediction at $0 fee	entry fee	predicted visitor-days	predicted visitor-days as percentage of prediction at $0 fee
$0	2487	100	$100	613	25
$1	2428	98	$200	293	12
$2	2371	95	$300	175	7
$5	2215	89	$400	117	5
$10	1992	80	$500	84	3
$15	1807	72	$1000	28	1
$20	1650	66	$1500	14	1
$50	1053	42	$2000	8	<1

Estimated mean consumer surplus per visitor-day, by method WTB4, disregarding bids of over $100: $49 [table 8.19]

'An estimate of [mean consumer surplus] $49 per visitor-day would be a conservative choice.' [p230]
'...This overall result indicates that demand is fairly inelastic over low fees.' [p249]

Comments on some other studies [p233ff]:

'It is relevant to consider the results of some recent studies undertaken using the Travel Cost Method (TCM). Four studies have been identified where the results have direct relevance to the current study as they have been conducted for other Australian World Heritage Areas or sites within WHAs. All four studies employed the traditional approach to TCM.

Kakadu National Park:
'A study of the value of Kakadu National Park to travellers was published in 1991 by Knapman and Stanley. The study included Australian visitors who made up 80% of

visitors. People from Jabiru township located within the National Park were not included in these visitor numbers or in the study. Knapman and Stanley do not report the average length of a visit but information from the park managers is that the average stay by private visitors was four days and the average stay by visitors on commercial tours was two days in 1991 (ANPWS 1991). Visitor fees of $5 per visit were charged in 1991.

'The consumers' surplus, above payments of entry fees[8], was estimated at $34 005 149. The mean consumers' surplus was therefore $174 per visit for 200 000 actual visits or $140 for 242 135 predicted visits. The estimates are in 1990 dollars.'

Hinchinbrook Island National Park:
'Hinchinbrook Island National Park is located off the Queensland coast, close to Cardwell. It is within the Great Barrier Reef WHA. The results of a study using TCM for visits to Hinchinbrook Island were published in 1994 by Stoeckl. This study only included Australian visitors, who made up an estimated 70% of all visitors. It was estimated that there were 3211 visits by Australians. Stoeckl does not report the average length of stay by visitors but notes that visits are made as day trips or longer stays. There are no entry fees to the island[9].

'The consumers' surplus was estimated at between $959 811 and $1 164 735[10]. The mean consumers' surplus per visit was $362. The estimates are in 1992 dollars.'

Price elasticity of demand, Kakadu and Hinchinbrook
'Neither of the above studies provided results on price elasticity of demand for entry fees. In a separate paper published by Knapman and Stoeckl (1995), the results of further analysis to calculate the price elasticity of demand for entry fees into both Kakadu and Hinchinbrook were presented. Elasticities were calculated over a range of hypothetical entry fees. It was found that with low fees, the demand was highly inelastic in that the predicted decrease in demand with an increase in fees was very small. The authors also calculated the fee level at which a one per cent increase in fees would result in a one per cent decrease in demand and found this to be quite high, at least $100.'

Fraser Island World Heritage Area
'TCM was applied to estimate recreation values for Fraser Island before it became a WHA. The results of the study by Hundloe et al were published in 1990. The study included all visitors, there is no indication that any of these were not Australian. Two populations of visitors were surveyed, private visitors and those on commercial tours. There were an estimated 100 000 private visitors in 1989-90 who stayed an average of five days. There were 90 000 visitors on tours. The length of stay is not reported but a proportion of tours are day trips. There was a visitor fee of $10 per private vehicle at the time. Entry fees, if any, for visitors on commercial tours are not reported.

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[8] It was estimated from the model that with current entry fees of $5 per visit, $896 797 would be paid in entry fees at the number of visits predicted by the model, which was 242 135 visitors.

[9] Tour operators on Queensland National Parks pay a per visitor fee of $1.15 or $2.30 per day but the extent to which that is passed on to visitors or made known to visitors is unknown.

[10] The smaller estimate does not include a value for the opportunity cost of travel time while the larger estimate does. The estimate without time costs gave a better R^2 value in the travel demand function.

'The estimate of consumers' surplus above entry fees was between $3 million and $6.2 million[11]. Based on a total of 1900 000 visits, the mean consumers' surplus was between $15.70 and $32.63 per visit. No estimates of price elasticity of demand were published.'

Dorrigo National Park

'Dorrigo National Park in Northern NSW is one of the reserves that make up the Central Eastern Rainforest Reserves (Australia) World Heritage Area. It receives approximately 1600 000 day visits per year. There are no entry fees for the Park.

'Bennett (1995) estimated the consumers' surplus for the Park at a mean value of $34.34 per visit (visitor-day)[12]. This translated into a total of $5.4 million per annum...'

Comparison

'The results of the study by Bennett provide the only direct comparison as the mean consumers' surplus was calculated for a visitor-day. Bennett's estimate was $34.34 (using a $100 cut-off point), which is lower than the $49 lower bound estimate for the Wet Tropics WHA, but of a similar magnitude.

In all the other studies, the consumers' surplus is calculated for a visit, and the length of visits is not identified. The values achieved in these other studies range for $15.70 to $362, which does raise questions about what the results mean. It is likely that different approaches to using cut-off points for generating estimates has an influence on the results selected for reporting. It would be useful if there could be more standardisation across studies with respect to using visits or visitor-days as the dependant variable (although as in this case, the analyst may have to chose the only option that produces useable travel demand functions) and the use of cut-off points in calculating consumers' surplus.

'The price elasticity of demand estimates derived for the Wet Tropics WHA, over the lower range of increases in entry fees show demand is not very elastic for low entry fees. This is a similar result to that of Knapman and Stoeckl for Kakadu and Hinchinbrook Island. This is an important finding in terms of ability to raise revenue without reducing demand in any significant way.'

References:
Australian National Parks and Wildlife Service 1991a, *Kakadu National Park: Plan of Management,* ANPWS & Kakadu National Park Board of Management, Canberra.
Bennett 1995: **Economic Value of Recreational Use: Gibraltar Range and Dorrigo National Parks*, NSW National Parks & Wildlife Service, Sydney***
Hundloe, T., McDonald, G., Blamey, R., Wilson, B. & Carter, M. 1990, *Non-extractive Natural Resource Use in the Great Sandy Region*, Report to Queensland Department of Environment And Heritage, Brisbane.
Knapman, B. & Stanley, O. 1991, *A Travel Cost Analysis of the Recreation Use Value of Kakadu National Park*, AGPS for the Resource Assessment Commission, Canberra.

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[11] The $3 million estimate comes from estimating the consumers' surplus for the two groups separately and adding the results. When the survey responses for both groups were added and a single consumers' surplus value estimated, the result was $6.2 million.

[12] Bennett used a double log function to estimate the travel demand function and therefore the entry fee demand schedule estimated was asymptotic. He used a $100 cut-off point as the upper limit of fees used to estimate consumers' surplus.

Knapman, B. & Stoeckl, N. 1995, 'Recreation user fees: an Australian empirical investigation', *Tourism Economics*, vol. 1, no. 1, pp. 5-15.

Stoeckl, N 1994, 'A travel cost analysis of Hinchinbrook Island National Park', Paper to Tourism Research National Conference, 10-11 February, Gold Coast.

Gillespie R, *Economic Value and Regional Economic Impact: Minnamurra Rainforest Centre, Budderoo National Park*, NSW National Parks & Wildlife Service, 1997

Used the travel cost method to survey willingness to pay for recreational use of Minnamurra Rainforest Centre, Budderoo national park. Entry fee at the time was, on average, $1.50 per person. Estimated average consumer surplus (willingness to pay minus actual payment) as $28 per visit (allowing for vehicle costs only) or $44 per visit (allowing also for the cost of travel time).

Comments on the typical ratio between value of use and value of non-use benefits:

'The Resource Assessment Commission inquiry (RAC 1991) into the forest and timber industry undertook both a travel cost study and contingent valuation study of forests of south eastern Australia. The results of the studies indicated "that the willingness to pay for consumers' surplus per person per year for the preservation values were approximately three times the willingness to pay per person per year for recreation values." (RAC 1991: E22). The RAC (1991: E22) identified that this is "a common outcome when the two methods are applied simultaneously." (Bennett et al. 1995: 133)' [p27-28]

References:

Bennett J, Gillespie R, Powell R & Chalmers L 1995, *The Economic Value and Regional Impact of National Parks*, Ecological Economics conference, conference papers, the Australian and New Zealand Society for Ecological Economics in association with the Centre for Agricultural and Resource Economics.

Resource Assessment Commission 1991: *Forest and Timber Inquiry, volume 2*, AGPS, Canberra.

Summarises some other travel cost studies [p51]:

study	reference	consumers' surplus
Grampians State Forest	Greig (1977) as reported in NSW EPA (1995)	$3 per visitor per day ($1990)
Warrumbungles NP	Ulph & Reynolds (1981) as reported in NSW EPA (1995)	$200 per visitor per day ($1990)
Green Is, Great Barrier Reef	Economic Associates Australia (1983) as reported in NSW EPA (1995)	$29 per visitor per day ($1990)
Gerringong-Gerroa NSW	James et al. (1993) as reported in NSW EPA (1995)	$104 per visitor per day ($1990)
Gibraltar Range NP	Bennett (1995)	$19 per visit ($1995) (average stay is almost 2 days)
Dorrigo NP	Bennett (1995)	$34 per visit ($1995) (average stay is 1/2 a day)P
Grampians NP	Read & Sturgess (1994)	$75 per visit or $18 per visitor day ($33 per visit or $7.86 per visitor day is onsite time costs excluded) ($1994)
South East forests	RAC (1992) [1991?]	$8.90 per visitor ($1992)
various recreation uses	Walsh et al. (1992) as reported in Read & Sturgess (1994)	$13-73 per recreation day ($A 1994)

References:
Bennett J 1995, *Economic Value of Recreational Use: Gibraltar Range and Dorrigo National Parks*, NSW National Parks & Wildlife Service, Sydney 1995
NSW Environment Protection Authority 1995: *ENVALUE: NSW EPA Environmental Valuation Database*, NSW EPA
Read M & Sturgess N 1994, *The Economic Significance of Grampians National Park*, prepared for the Department of Conservation and Natural Resources
Resource Assessment Commission 1991, *Forest and Timber Inquiry, volume 2*, AGPS, Canberra

'... great care must be taken in attempting to draw any conclusions from the comparison of travel cost studies... there are numerous issues in the application of the travel cost method. Comparison of travel cost studies is complicated by how these issues are dealt with within the individual studies. For instance, whether or not the opportunity cost of travel time is included can make a considerable difference to consumers' surplus estimates...

'...other things being equal, it would be expected that the consumers' surplus associated with sites that have different facilities and recreation opportunities and/or differing socio-economic characteristics of visitors would vary... it could be intuitively expected that visitors might be willing to pay a greater among to visit sites such as Dorrigo National Park and Minnamurra Rainforest Centre which have more highly developed visitor infrastructure and fewer substitutes... This has been borne out...' [p51-53]

WILLINGNESS TO PAY FOR ARTS AND CULTURE

Bille Hansen T, 'The willingness to pay for the Royal Theatre in Copenhagen as a public good', *Journal of Cultural Economics* vol 21 no 1 1997, p1-28

Used the contingent valuation method to survey the Danish people's willingness to pay for both use and non-use benefits of the Royal Theatre, Copenhagen.

> 'This application of the contingent valuation method (CVM) is quite new. CVM has for the more part been used on environmental goods (a recent bibliography, Carson et al. 1995, lists 2,000 studies and papers from over 40 countries on many topics, mainly environment, but also transportation, sanitation, health, the arts and education). In the literature there are only a few examples of utilization of CVM for cultural goods (eg Martin 1994; Throsby & Withers 1983; Morrison & West 1986), and most of these studies have used CVM on very broadly defined goods.' [p1]

> References:
> Carson R T, Wright J, Carson N, Alberini A & Flores N, *A Bibliography of Contingent Valuation Studies and Papers*, Natural Resources Damage Assessment, La Jolla California, 1995
> Martin F, 'Determining the size of museum subsidies', *Journal of Cultural Economics* vol 18 no 4, 1994-95, p255-270
> Morrison W G & West E G, 'Subsidies for performing arts: evidence on voter preference', *Journal of Behavioural Economics*, vol. 15 fall 1986, p55-72
> Throsby C D & Withers G A, 'Measuring the Demand for the Arts as a Public Good: Theory and Empirical Results', in Hendon W & Shanahan J (eds), *Economics of Cultural Decisions*, Cambridge, Abt Books 1983

[The Royal Theatre receives a public subsidy of about DKK266 ($47 million) per year, being about DKK60 ($10.50) for each Dane over 18 years of age. The subsidy is more than 80 per cent of its total budget.]

Table VI & VIII Willingness to pay for the Royal Theatre, Copenhagen (DKK)								
	average willingness to pay per person			total w.t.p (= average w.t.p. times population 18 & over: total 4.5 million)			median w.t.p.	'aggregated median'***
	users*	non-users	whole pop'n	users*	non-users	whole pop'n		
without information**	693	232	259			1,165m	60	270m
with information	205	68	79			350m	60	270m
all respondents	368	137	154	121m	561m	690m	60	270m

[* 'Users' = visitors during the year preceding the survey. In 1993 about 7 per cent of the Danish population had visited the theatre in the previous year, and 68 per cent had never been there.
** Half the survey respondents, before being questioned on their willingness to pay, were advised that 'all Danes over the age of 18 pay on average DKK 60 a year to the Royal

Theatre through taxes.' The other half ('without information') were simply told 'All Danes pay to the Royal Theatre through taxes.'

*** 'Aggregated median' is the median times the population: this is the amount which the public subsidy would theoretically be if the preferences of the 'median voter' prevail.]

'If the median is used it can be seen that the aggregated willingness to pay adds up to DKK 270million, which is about the same as the subsidy which is actually given to the theatre [266million]... This indicates that the political process actually functions well and that the results are in accordance with the preferences of the median voter. But... it is the average willingness to pay which is in harmony with the potential Pareto criteria and economic efficiency.' [p18-19]

'...users [on average] have a considerably larger willingness to pay than non-users... the willingness to pay of users... comprises approximately 18 per cent of the total willingness to pay, in spite of the fact that the users only comprise approximately 7 per cent of the total population.... [however] *the non-users' willingness to pay makes up far the biggest part of the total willingness to pay for the Royal Theatre, namely about 82 per cent....* Even though a large proportion of the Danish population never visit the theatre, they are willing to pay an option price for the possibility of being able to go there and for the non-use value of the theatre, ie education value, bequest value, prestige value and vicarious consumption... The estimates show that of the aggregated willingness to pay for the Royal Theatre, the consumer surplus of private consumption ex post make out 6-9 per cent, option price amounts to 56-67 per cent , while non-use value makes out 35-37 per cent...' [p21-2,25]

Martin F, 'Determining the size of museum subsidies', *Journal of Cultural Economics* vol 18 no 4, 1994-95, p255-270

Used the travel cost method to estimate willingness to pay for use, and the contingent valuation method to estimate willingness to pay for non-use benefits, in respect of the same place (Musée de la Civilisation, Quebec). The museum had 762,100 visits in ?1991? 90 per cent of the museum's operating budget is covered by government subsidies. Results:

Musée de la civilisation, Quebec, 1991		
entry fees & miscellaneous revenue	$823,000	
consumers' surplus of province of Quebec visitors	$5,179,000	
subtotal: use value		$6,002,000
'discrete sponsorship'	$200,000	
willingness to pay taxes to support the museum*	$12,600,000	
external benefits**	$1,970,000	
subtotal: non-use value		$14,770,000
total annual social benefits of the museum		$20,772,000

* The taxpaying group surveyed was the population 18 years and over of the province of Quebec (4.8 million people). The survey questioned their willingness to pay for 'all Quebec museums' (result: $38.4 million or average $7.95 per person), then assigned a share of this to the Musee de la Civilisation proportional to its share of total visitation to all Quebec museums.

** Mainly imputed benefit to school tours (valuation based on the average daily cost of educating the students), and employment of labour *which would not otherwise be employed*. The author stresses the need to discount claimed externalities which ignore the shadow price of the resources used.

> 'Without cash revenues, the social benefits of the museum, ie $19.749 million, seem to cover the subsidy of $18.4 million.' [p262]

> 'We have also studied a small museum located far from large cities: the Colby-Curtis Museum in Stantstead, Quebec. With similar methods, we established the annual social benefits of the museum at $53,775. This is to be compared to an operating budget of $35,000 and to subsidies of $19,839. In that particular year, the museum appears to be under-subsidised. (Martin 1993).' [p269. Reference: Martin F 1993: Une méthode d'évaluation des musées. Chaire de gestion des arts, Ecole des Hautes Etudes Commerciales, Montréal.]

> 'Museum directors [should] cultivate, in their public relations campaigns, the goodwill of the population in general (as opposed to visitors only) since it is the willingness to pay taxes that is the main source of value for a museum.' [p263]

Morrison W G & West E G, 'Subsidies for performing arts: evidence on voter preference', *Journal of Behavioural Economics*, vol. 15 fall 1986, p55-72:

Surveyed residents of Ontario, Canada, over 18 years of age for their willingness to support the arts and culture through taxation.

Willingness to pay tax for 'the arts'

Respondents were told that in 1981 each Ontario adult, on average, paid $3.35 in taxes, over all levels of government, to support the performing arts ('drama, dance, classical music and opera') -

Do you think that $3.35 a year [in average individual tax contribution to performing arts subsidies] is... (per cent)	
too little	39%
too much	5.5%
just right	49%
don't know	6.5%

'Dissatisfied' respondents (those nominating 'too little' or 'too much') were asked what they thought an appropriate amount would be. '... sample A were asked this question on the understanding that their tax liability would not change, no matter what they decided. Sampe B were asked the same question on the understanding that their taxes would increase or decrease accordingly.' [p64]

amount nominated ($)	among respondents dissatisfied with current government subsidy to performing arts ($3.35 per Ontario adult) per cent nominating...	
	sample A: no liability	sample B: with liability
$0-2	5%	6%
$3-5	22%	15%
$5-9	23%	24%
$10-14	15%	12%
$15-19	4%	4%
over $20	6%	8%
'don't know'	25%	31%
total	100%	100%
median:	$6-9	$6-9

Willingness to pay tax for 'culture' defined more broadly

Similar questions were asked about cultural expenditure more broadly ('art galleries, museums, books, publishing, painting and sculptures, films, records and cassettes, crafts, multiculturalism, public archives, libraries, TV and radio and heritage); the corresponding figure for average tax contribution being $128 for each Ontario adult.

Do you think that $128 a year [in average individual tax contribution to 'cultural' subsidies] is... (per cent)	
too little	2%
too much	19%
just right	51%
don't know	8%

> '...These responses were much more conservative. One reason for this might be the perception of $128 as a much larger sum compared to $3.35 in the case of the performing arts.' [p65]

Further questions were asked of 'dissatisfied' respondents, as above:

amount nominated ($)	among respondents dissatisfied with current government subsidy to culture ($128 per Ontario adult) per cent nominating...	
	sample A: no liability	sample B: with liability
$0-29	7%	8%
$30-59	2%	7%
$60-89	6%	18%
$90-109	10%	10%
$110-129	3%	1%
$130-149	10%	9%
$150-169	9%	11%
$170-200	23%	20%
don't know	30%	16%
total	100%	100%
median	$140-149	$90-109

'The actual 1981 payment of $128 lies virtually in the centre of this interval [between the liable and non-liable medians] and 55 per cent of the respondents indicated that $128 was just right.' [p66]

Willingness to pay tax for arts and culture in context of total public expenditure

Respondents were told that in 1981 each Ontario adult, on average, paid tax contributions of $650 for education, $15 for pollution control, $7 for housing, $7 for tourism, $30 for police and $11 for recreation. The 'dissatisfied' respondents (see above) were then again asked their preferences for government spending on performing arts, and culture more broadly:

Preferences of 'dissatisfied' respondents: percentage favouring...				
	performing arts		cultural activities	
	fixed budget	flexible budget	fixed budget	flexible budget
increase in spending	34%	63%	15%	42%
decrease in spending	44%	9%	51%	35%
no change	21%	0%	33%	0%
don't know	1%	28%	1%	23%
fixed budget = 'on the understanding that any change in government spending in these areas would mean a decrease/ increase in other services like those just mentioned.' flexible budget = 'where no effects on other areas of government spending were considered.'				

Perceptions of external benefits from live performing arts

Those who reported themselves as non-users of subsidised live performing arts (estimate: about 70 per cent of the population) were asked 'Since you personally do not go to live performances of drama, dance, classical music or opera, what benefits, if any, do you feel you get from these things in return for paying taxes towards them?' Prompts were not given, 'but rather left each individual to mention any benefit that came to mind.' [p69]

external benefits from the performing arts reported by taxpaying nonusers (per cent of respondents naming each type)	
brings business to the area	2%
anticipated future use	20%
'national pride'	7%
welfare of future generations	11%
educational importance	7%
other	13%
no benefit perceived	40%

'...14 per cent... of the whole sample fall into the paradoxical category of individuals agreeing to pay for 'no benefits' [ie who perceived no external benefits yet still named some willingness to pay].
'We can offer two hypotheses that might help resolve the paradox....[First, logrolling (vote trading): A may support something that B values but A does not value, in the hope that at some other time B may return the favour.]... The second hypothesis... is that $3.35 per head was too small an amount to excite much opposition...' [p70]

Conclusion

'The results of our own survey of demand for the performing arts in Ontario include some empirical evidence... that external benefits are recognized, and with positive monetary values attached to them, by many members of the public. In this present case, moreover, the relevant external benefits appear to have already been captured (internalized) via current public expenditures....' [p70]

Comments on Morrison and West by others:

'A quite similar survey [to Throsby and Withers 1982] by William G Morrison and Edwin G West of willingness to pay by voters in the Province of Ontario, Canada, confirm that Canadians, too, recognize the existence of significant external benefits from the arts. In the Canadian survey, however, the median voter appeared to find the current (1981) level of tax support to be 'just right'. The authors argued that that level - $128 (Canadian) per adult, per year, for art and culture broadly defined - could therefore be taken as an approximate measure of the value of the purported externalities. Or as they put it, 'The relevant external benefits appear to have been already captured (internalized) via current public expenditures.'' (comment by Heilbrun J & Gray C M, *The Economics of Art & Culture: an American Perspective*, Cambridge University Press 1993, p213)

'In addition to the positive external effects of art found in the case of Australia [Throsby & Withers, 1982], the Canadian study [Morrison & West 1986] reveals that much importance is attributed to the option value, even by taxpaying non-users of cultural institutions.' (Frey B & Pommerehne W, *Muses and Markets: explorations in the economics of the arts,* Oxford 1989, p19)

Myerscough J et al, *The Economic Importance of the Arts in Britain*, London, Policy Studies Institute 1988, p120ff:

A representative sample of the adult population of Glasgow, Merseyside and Ipswich, UK, was surveyed. 62-65 per cent of the sample had attended at least one arts event/attraction in the previous 12 months. 31-39 per cent had visited museums and galleries. Social class had the most bearing on use: people in the 'upper and lower middle class' were more likely to have attended (81-82 per cent), 'skilled, semi-skilled and unskilled working class' less likely (54 per cent). However, 'it should not be thought that the level of interest among [the latter group] was insignificant: between 24 per cent (Ipswich) and 31 per cent (Merseyside) [of the latter group] had visited a museum...'
Respondents were shown a list of public amenities and invited to say which of them were important to their quality of life. Arts ranked below 'green' amenities but above most rival recreations. Social class made little difference to the order of priorities. 'The kinds of benefits [from the arts] included an improved image for the city or region, a feeling of pride in the amenities of the locality, a concern for the welfare of future generations...'
One third of respondents attended an event/attraction at least twice a year; two thirds attended at least once a year; about 70 per cent said that the arts were personally important to them; over 90 per cent thought that the arts were important for the residents of the region in general. 'Thus, actual attendance at events and attractions is not necessarily a sound guide to the value placed by the public on the existence of arts facilities.... People also valued the

opportunity for themselves and other to attend, though they did not always exercise it. There was no support for the view that the arts were of value to only a small segment of the population.'

Respondents were asked, 'The amount of public money used for all the arts and cultural attractions in the (relevant) region amounts to about (relevant sum) per year for every resident. Do you think this amount should be increased, remain the same, be decreased or be stopped altogether?' Responses were (averaged over the three regions):

	all per cent	'upper and lower middle class' per cent	'skilled, semi-skilled and unskilled working class' per cent
should be increased	35	40	34
should remain the same	51	48	52
should be decreased	4	2	4
should be stopped altogether	2	0	3
don't know	9	10	8

'This investigation confirms the results of other studies that the vast majority of the people did perceive the existence of some general benefits in the arts.'

Navrud S et al, *Valuing our Cultural Heritage: A Contingent Valuation Survey,* Centre for Research in Economics and Business Administration, Oslo 1992

'A study of the preservation value of old Nidaros Cathedral in Trondheim, Norway, by Navrud *et al.* (1992) from weathering or corrosion by air pollution, revealed that the largest proportion of willingness to pay was due to preservation motives, and only 14 per cent was motivated by visitors' own use or experience of the buildings.' (comment by Willis K G, 'Paying for heritage: what price Durham Cathedral', *Journal of Environmental Planning and Management*, vol 37 no 3, 1994, p267-278)

Papandrea F, *Measuring Community Benefits of Australian TV Programs*, Bureau of Transport and Communications Economics occasional paper 113, Canberra 1996

Surveyed people's willingness to pay for Australian content of TV programs:

QI.11 'On average each household pays about $120 a year in taxes and increased prices for advertised goods to finance Australian TV programs. Considering the benefits your household and the community get from Australian programs, do you think this amount should be increased, decreased or stay the same?'

A: should be increased: 12 per cent; should be decreased: 15 per cent; should stay the same: 65 per cent; don't know/ don't care: 8 per cent

QI.16 'Even if you don't watch many Australian TV programs, would your household be prepared to pay an extra $12 each year, in increased prices and taxes, for a 10 per cent increase in Australian programs?' [and subsidiary questions]

A: w.t.p. $12 or more: 48 per cent; w.t.p $1-$12: 7 per cent; not w.t.p. anything (or less than $1): 33 per cent; don't know: 12 per cent

Throsby C D & O'Shea M, *The Regional Economic Impact of the Mildura Arts Centre*, Macquarie University School of Economic and Financial Studies, research paper No. 210, June 1980

A retrospective cost-benefit analysis of the Mildura Arts Centre, which opened in 1966.

extracts from table 16, p53		
	1979 $'000	discounted present value (1979) of 1965-1979 figures at 5 per cent
A. capital costs		$1.347million
B. earned income (admission fees, rent of performance space)	26.6	
C. operating expenses	141.9	
D. consumer surplus of paying visitors (willingness to pay for use in excess of actual payments) estimated by questionnaire	105.2	
E. imputed benefit to non-paying visitors (mainly school children)	12.0	
F. willingness to pay for non-use benefits estimated by questionnaire (population: Mildura City and Mildura Shire residents aged 18 years and over)	142.5	
G. net operating benefits (B+D+E+F-C)	144.5	$1.866million
net present value (discounted sum of annual values of G minus A)		$0.419million

> 'Our results... show clearly that the largest benefits from the Arts Centre arise from non-market sources. This is in line with the nature of this project where... the public good output [community/non-use benefits] is one of the chief rationales for the investment.' [p57]

Q8. 'Is it important that Mildura have an art gallery (museum/ theatre/ sculpture triennial)?' [A: very important/ important/ of minor importance/ not important at all]		
percentage of respondents regarding it as 'very important' or 'important' to have...		
	users	whole population
...art gallery	96.3%	91.5%
...museum	94.0%	92.3%
...theatre	97.0%	90.9%
...sculpture triennial	59.5%	47.0%

Further survey of the 'public good' [non-use] benefits/detriments of the Arts Centre:

Q9. ' Do you agree with the following statements about the Mildura Arts Centre as a whole?' [A: strongly agree/ agree/ disagree/ strongly disagree]	
	percentage of respondents 'strongly agreeing'
an added attraction for tourists	61%
gives the local community a sense of pride	45%
stimulates local talent in the arts	44%
attracts new and creative ideas in the local community	39%
is useful in education of school children	49%
is a resource centre for the local community in artistic matters	36%
should be closed and the land and buildings used for something else	2%
should be maintained so that people have the option of using it now or in the future	54%
caters only to a privileged minority	6%
encourages disturbing influences that damage the local community	4%

'The population's interpretation of the [non-use aspects] is almost entirely favourable... [p84].

Throsby C D & Withers G A, *Measuring the Demand for the Arts as a Public Good: Theory and Empirical Results*, Macquarie University School of Economic and Financial Studies, research paper 254, May 1982; reprinted in Hendon W & Shanahan J (eds), *Economics of Cultural Decisions*, Cambridge, Abt Books 1983

Surveyed people's willingness to pay for non-use benefits of the arts through taxation; 'the arts' for the purpose of the survey defined as 'corresponding roughly to the domain of the Australia Council'.[13]

'Of course there have been many surveys of public attitudes to the arts and to art subsidies and support . And a common finding is that a clear majority of taxpayers who do not themselves really participate in the arts are nevertheless wiling to see some of their tax monies going to support arts activities, often in amounts in excess of present levels of support... Nevertheless , this sort of evidence is not very convincing... Questions about almost any area of government outlay, asked in isolation, are likely to produce such a positive reaction. When it is pointed out that increased outlays in that area could only attained through increased taxes or reductions in other expenditures, responses are likely to be modified.

[The survey was designed to overcome these problems.]

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[13] Throsby D & Withers G, *What Price Culture*, Australia Council 1984, p6

Attitudes to public good [non-use] benefits of the arts

> '...responses... indicate that there is an overall acceptance of public benefit accruing from the arts...' [p9]

Table 1. Attitudes to 'public good' [non-use] benefits of the arts (percentages of respondents)

	strongly agree	agree	disagree	strongly disagree	don't know
The success of Australian painters, singers actors etc. gives people a sense of pride in Australian achievement.	34%	61%	4%	0.5%	0.8%
The arts help us to understand our own country better.	15%	69%	13%	0.4%	2%
The arts only benefit those people who attend or participate.	3%	32%	61%	3%	1%
The arts have an important role in making us look at our way of life.	14%	67%	17%	0.5%	2%
The arts should not be allowed to die out.	54%	43%	2%	0.4%	0.7%
It is important for school children to learn music, painting, drama etc. as part of their education.	55%	42%	3%	0.4%	0.4%
The arts often harm our society by being too critical of our way of life.	1%	14%	68%	13%	4%
All theatres, opera and ballet companies, and public art galleries, should be made to survive on their ticket sales alone.	3%	18%	66%	12%	1%

Personal willingness to pay

Table 2. Willingness to pay taxes to support the arts ($A per year)*

	mean (without/ with liability)**	median (without/ with liability)
without information***	$115/ $87	$50/ $50
with information	$65/ $52	$20/ $15

* 'excluding willingness to pay over $500 per year' [whether bids over $500 are valued at $500 or completely excluded is unclear]
** 'Without liability' shows answers to the question: 'Suppose that there would be <u>no change in your total taxes</u>. What is the maximum you would want paid out of your taxes each year to support the arts at their current level?' 'With liability' shows answers to the question: 'What is the maximum you would want paid out of your taxes each year to support the arts at their current level, <u>if your taxes were adjusted so that you would actually have to pay</u> the amount you nominate?' [The hypothesis is that these questions will elicit *opposite* strategic biases, and that the true willingness to pay lies somewhere between the figures shown.]
*** 'information' = an estimate of the individual's current apparent tax liability for arts appropriations, based on their income. Respondents were questioned without this information, then given the information and questioned again.

[The median willingness to pay 'with information' ('assuming the informed judgement to be the more considered opinion'), at $15, may be compared with actual subsidy expenditure 'which is in the region of $6 per head.'] '...Accordingly we must conclude that in Australia there exists substantial excess demand for the arts as a public good at current levels of provision.' [p10-11]

[Willingness to pay, as a percentage of household income, did not differ much between those who had attended a professional arts event in the last 12 months and those who had not:]

Table 4. Willingness to pay as a proportion of household income, by participation*						
	attendances at professional arts events in the last 12 months					
	0	1-5	6-10	11-15	over 15	total sample
mean w.t.p. as per cent of total annual household income ($)	0.41%	0.36%	0.32%	0.55%	0.85%	0.44%

* with information, with liability (see above for explanations)

Desired levels of government support for the arts

'We now turn to the judgement of the sample on what was thought to be an appropriate average level of support for the arts in Australia. The questions now differ from earlier questions in three important respects: firstly the respondent is now freed from the restriction of being tied to the current level of support but can express approval for an increase or decrease in the amount or quality of artistic activity taking place; secondly, he or she is now being asked for a judgement not so much on own willingness to pay but rather on what is considered a reasonable average for everyone to pay; thirdly, the respondent is now fully informed on the current level of arts appropriations in relation to a range of other public outlays... 72 per cent of respondents favoured an increase in art outlays' [p11]

Table 5. Government support for the arts: respondents favouring... (per cent)		
...increase	72%	
...no change	24%	
...decrease	3%	
no opinion	1%	
Suggested level of government support ($)		
	mean	median
among those favouring increase	$43	$18
among those favouring no change	$6	
among those favouring decrease	$1	$0.2
among all respondents	$32	

'The clear policy implication is maintenance and expansion, not contraction, of government support for the arts in Australia.' [p13]

Throsby D & Withers G, *What Price Culture*, Australia Council 1984

Further comments on the survey reported in Throsby and Withers 1982 (see above).

Willis K G, 'Paying for heritage: what price Durham Cathedral?', *Journal of Environmental Planning and Management,* vol. 37 no. 3, 1994, 267-278

Used the contingent valuation method to survey willingness to pay for entry to Durham Cathedral. Entry is free, with a donation of £1 encouraged by signs and donation boxes.

£	actual donation	willing to pay compulsory charge of...		
			percentage of free-entry visitors retained	aggregate revenue per 100 visitors*
0	51%	36%	100%	£0.00
< 0.25	3%	3%	64%	£8.00
0.26-0.50	7%	9%	61%	£22.88
0.51-0.75	15%	3%	52%	£32.50
0.76-1.00	12%	18%	49%	£42.88
1.01-1.25	2%	8%	31%	£34.88
1.26-1.50	0%	4%	23%	£31.63
1.51-1.75	3%	4%	19%	£30.68
1.76-2.00	6%	7%	15%	£28.13
2.01-2.50	1%	3%	8%	£18.00
2.51-3.00		2%	5%	£13.75
3.01-3.50		3%	3%	£9.75
			0%	£0.00

Table 2 & 3. Percentage of respondents reporting...
* calculated from a price point midway in the range shown in the left column

'Clearly the current management arrangement permits a certain amount of free-riding for what is (access to the interior of the Cathedral) a private good... the level of contribution falls short of that which would be attained by operating the interior of the Cathedral as a private good, but only if the Dean and Chapter behaved as a perfectly discriminating monopolist [charging each visitor exactly what that visitor is willing to pay]. Of course, unlike God, the Dean and Chapter lacks omniscience, and would be unable to act as a perfectly discriminating monopolist. One alternative would be to charge one single compulsory price which maximized revenue... However, such a compulsory entrance charge of 87.5p would result in fewer visits to the Cathedral: only around 49 per cent of the number of visits currently made under the voluntary contributions policy would occur.... The current policy of voluntary contributions results in marginally more revenue than could be generated under a compulsory entrance charge.' [p274]