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Nonmarket Economic Valuation of an Urban Recreation Park

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We briefly discuss the problem of valuing time in recreation demand studies, and report on a recent case study which assessed the nonmarket economic value of Centennial Park, Sydney, using both the Travel Cost and Contingent Valuation methods. Modal choice analysis was used to estimate the value of travel time for inclusion in a Travel Cost model. The nonmarket economic value of the park was estimated to be between $23 and $33 million per year, with at least $2.6 million due to nonuse value.[1] This compared favourably with annual management and maintenance costs of under $6 million.

KEYWORDS: *Recreation economic benefits, nonmarket valuation, Travel Cost, Contingent Valuation.*

Introduction

While choices between different public policy alternatives may be most appropriately made in the political arena, economic valuations can contribute to such decisions by giving guidance on the economic costs and benefits of allocation options. The economic value of public goods can be broadly categorised into market and nonmarket components. Market economic values are determined by the exchange of goods and services in organised markets through the price mechanism. Price is thus an indicator of relative value, though where markets are distorted, adjustments need to be made to yield so-called shadow prices. Market price, and to a lesser extent shadow price, are relatively easily determined. However, the major economic values of many public goods such as recreation resources and protected natural areas are typically not directly captured through any price mechanism. Generally entrance fees to such resources are zero, or do not cover the full cost of providing the resource. Despite this, their economic value can be considerable in that people are willing to give up scarce resources, including time and money, both to use such areas and ensure they continue to be available. These nonmarket economic values are most commonly classified into use and nonuse components (Freeman, 1993).

Use values are the benefits which accrue to visitors who use an area's facilities and enjoy its amenities. This category of value is likely to be the

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[1]Australian dollars are used throughout this paper.

most significant nonmarket value of major urban recreation sites. There may also be vicarious use benefits which accrue to individuals who derive enjoyment from the park indirectly through the media (Randall & Stoll, 1983). Option value (Bishop, 1982; Weisbrod, 1964) is a future use value which can arise from the desire of an individual to retain the option to undertake future visits to a site which possesses certain known desirable qualities. However, more recent work has shown that option value is not a separate component of value, but merely the difference between an ex ante option price and an ex post consumer surplus (Smith, 1987).

Nonuse value has often been divided into existence and bequest value. Bequest value arises when individuals value an area not because they want to use it themselves, but because they want to reserve that right for future generations. Existence value is the benefit received by those who derive satisfaction from knowing that the site is preserved in a certain condition irrespective of use or potential use by the individual or others (Brookshire, Eubanks & Randall, 1983; Krutilla, 1967; Walsh, Loomis & Gillman, 1984). However, the motivations underlying any nonuse value need not be defined when total value is being estimated (Freeman, 1993). In this paper we avoid any subdivision of nonuse value and simply consider that any value placed on the resource by nonusers must be nonuse value. Of course users may also have a nonuse value over and above their use value for the resource.

In this study we estimated the nonmarket economic benefits associated with a major urban recreation resource, Centennial Park in Sydney, using the travel cost (TC) and contingent valuation (CV) methods. Centennial Park is situated five kilometres south east of central Sydney and consists of 220 hectares of parkland ranging from sculptured gardens and ornamental wetlands to sports fields and more natural areas. The land occupied by Centennial Park is vested in the Centennial Park & Moore Park Trust through the Centennial Park Trust Act. Centennial Park is a park of regional significance to the people of Sydney because it is at the heart of a large city, is surrounded by high density housing and has great historical significance (Mortimer & Grimwade, 1991). There were over three million visits to the park in 1992 (CPMPT, 1992), with visitors undertaking activities such as horse riding, cycling, jogging, bird watching, picnicking and walking. There is no entrance fee for use of the park.

Nonmarket Valuation Methods

Two important ways of estimating the nonmarket economic values of recreation resources are the TC and CV methods. TC is used for estimating the recreational demand for a particular site when market prices are not available. The key to the travel cost model is that costs of travel to a site are a proxy for the price of that site. In a zonal travel cost model (ZTC), demand is inferred by relating the rate of use to the population of each visitor origin zone. Individual travel cost models (ITC) estimate the number of visits demanded by each user as a function of travel cost and other explanatory variables. Costs include all direct and out of pocket expenditures and indirect elements such as the value of travel time and the disutility (or utility) of travel.

Traditionally there have been problems with using TC in urban areas because travel costs may not be a major determinant of visitation (Gratton & Taylor, 1985), and travel time becomes a key factor in determining recreation demand. As noted by Roberts (1985), the very high proportion of local visitation evident in 1985 suggested that travel cost may not have been a major determinant of use for Centennial Park. However, by 1992 the park had become a regional recreation resource with significant increases in the number of people travelling between 10 and 45 minutes to visit the park (CPMPT, 1992). Nonetheless, travel time, as well as cost, is likely to be a significant determinant of recreation demand for Centennial Park and if neglected the economic value of the resource would be underestimated.

CV involves the creation of a hypothetical market to enable quantification of the community's willingness to pay (WTP) for receiving specified benefits from a particular resource. Willingness to pay is a measure of the economic sacrifice an individual is willing and able to forego in income or other goods or service to get more of another good or service. CV has been used in Australia to value, among other things, the value of controlling the Crown of Thorns Starfish on the Great Barrier Reef (Carter, Vanclay & Hundloe, 1987), nonuse values of the Kakadu Conservation Zone (Imber, Stevenson & Wilks, 1991), and the value of reserving currently unprotected national estate forests in south-east Australia (Lockwood, Loomis, & De Lacy, 1993). It has not generally been used in the valuation of urban parks, although it appears to be well suited to this application.

CV provides Hicksian estimates of the benefit a resource generates for users and nonusers, through a measure of the central tendency of the WTP distribution represented by the mean. The TC enables construction of a Marshallian demand curve and therefore yields an estimate of consumer surplus. Unless the welfare measures are of significant magnitude in relation to income (which is unlikely to be the case here), consumer surplus is a good approximation of WTP and the two measures can be compared (Carson, 1991; Willig, 1976).

The Value of Time

A problem in the estimation of a TC model is a consistent bias in the imputed demand curve if it is assumed that the disutility of overcoming distance is a function money cost alone. When a recreationist visits a park, she or he is faced by the dual constraint of money and time. This means that a recreationist living further away from the recreation site will have higher travel costs and use more time getting there, than a recreationist from a more proximate zone. These dual constraints result in lower use by individuals in distant zones. Even when the price constraint is eliminated, the outer zone visitor is still constrained by time, and will not visit as much as a recreationist who lives in a zone adjacent to the site. Therefore, to successfully model demand for that recreation site using TC, it is important to include the cost of time.

It is not known, a priori which factor, time or money, has the most significant effect on demand, as an individual may have to balance the attraction of a distant site with a reduced amount of time available for enjoying it. In urban situations time is likely to be particularly significant, and the problem of not including time is compounded in the second stage demand curve of a ZTC, where an increase in cost is used to model total demand. Although the imposition of extra monetary costs will cause the visitation rate from the first origin to fall, it will not fall to the visitation rate of more distance points, because the relative time costs associated with the two origins have not changed. This can result in underestimation of the visitors from further distance zones and consequently the benefits attributed to the park. This can be corrected by including time as a separate variable in the TC model, or by making the visit rate a function of both money and time cost. It is best, if possible, to estimate time and cost effects separately, although multicollinearity (as both time and money are related to distance) often makes this difficult (Cesario & Knetsch, 1970).

Mansfield (1969) considered that if travellers derive satisfaction from travel, then they would be unwilling to pay to have this time reduced, and therefore the value of travel time should not be included in the cost of travel. Though this may be true for holiday or sightseeing travel, it is unlikely that in an urban situation travel yields much, if any, utility to the recreationist. In support of inclusion of time, Oort (1969) found that all commuters on the journey to work and most individuals travelling to recreation areas, prefer a reduction in travelling time. When on-site time varies with the distance travelled the non-inclusion of the opportunity cost of on-site time can also lead to underestimation of the net benefit. However, if on-site time does not vary with distance, then the inclusion of on-site time in the model is not warranted.

Time costs involved in a visit to a recreation site can be regarded as either the value of time as a scarce resource or the value of time saved (Truong & Hensher, 1982). The scarcity value of time can be considered as the opportunity cost of time, which represents the monetary value a consumer would be willing to pay to have an additional unit of time, if this was possible. The value of time savings is what the individual would be willing to pay to have time in an activity (such as travel) reduced so that it could be allocated to some other activity.

Most studies which have estimated the opportunity cost of time in a travel cost analysis have used the after tax wage rate or some portion of this, on the assumption that travel time reduces work or leisure time that could be spent on other activities (Knapman and Stanley, 1991; Ulph & Reynolds, 1981). Based on the idea that in a free market for labour the marginal value of recreation to the consumer is what the individual foregoes in extra earnings, economists have often used the labour market and the wage rate as a starting point from which to value the opportunity cost of time. Some researchers have suggested using the full hourly wage as a measure of the value of recreational travel time (Smith, Desvouges & McGiveney, 1983), while others suggested using the after tax wage rate (McConnell & Strand, 1981), or one third of the wage rate as used in many commuter studies (Cesario, 1976; Mendelsohn & Brown, 1983). Hof and Rosenthal (1987) considered that there is greater support for using the full wage rate rather than some fraction of it. Adamowicz and Graham-Tomasi (1991) used the wage rate, 1/2 the wage rate, as well as a model without a time value, in their analysis of hunting in Alberta, and showed that the models without any time value did not perform as well as the models with time values, with the most efficient model being the one using the full wage rate. Farber (1988) in his study of the Terrebonne wetlands, estimated the value of recreational travel time to be approximately 10% of the wage, while McConnell and Strand (1981) and Knapman and Stanley (1991) considered that estimating opportunity cost as an arbitrary portion of the wage rate, independent of the sampled population, is not justified.

The use of the actual wage rate, or part thereof, assumes that the marginal rate of substitution between labour and leisure is directly related to the wage rate, and the opportunity cost of engaging in leisure corresponds to the foregone earnings the individual could make while working. If this is the case, an individual with a high income will gain more value from another hour recreating than someone with a low income, and that individuals not earning a market wage (for example, the unemployed or retired) do not value their recreation time (McConnell, 1985; Shaw, 1992). Although a low wage earner will have a low opportunity cost of time, this does not mean that they have a low value for it. Using the wage rate as a measure of the opportunity cost of time is also problematic for home workers, who are unpaid and whose work is often assumed to be without economic value.

A further problem with using the wage rate as an indicator of the opportunity cost of time is that for individuals working fixed hours, there is no labour leisure choice on a daily basis (McConnell & Strand, 1981). For those individuals, all that can be said is that the total utility gained from working outweighs the total loss of leisure, as otherwise the person would not work (Harrison & Quarmby, 1969; Vickerman, 1975). In many work situations there may be individuals who can adjust working time up, through overtime, but cannot adjust it down. Therefore there will be few, if any, people who would be willing or able to work less hours, but there may be some people who will work more.

Larson (1993) considered the situation where the labour-leisure decision is not a determinant of time value, and developed a model in which individuals jointly choose both time spent at a site and the number of visits to it. This enabled derivation of a nonparametric estimate of the scarcity value of time S for individuals choosing multiple trips to the one recreation site:

$$S = (Tt - OcOt) / (Ot - Tt) \quad (1)$$

where Tt is travel cost per trip, Oc is on-site cost, Ot is on-site time and Tt is travel time.

Wilman (1980) investigated the issue of whether travel time should be valued at its opportunity cost, or as value of time saved in travel, and favoured the latter. The value of time saved can be determined through a modal choice analysis by considering the amount of money an individual will spend to reduce travel time. This behaviour is best observed when an individual can make a particular journey between two places by more than one mode of transport (Coppock & Duffield, 1975). Modal choice analysis assumes that the travel decision is based only on money and time costs. Therefore, other things being equal, the traveller will prefer lower money costs and faster travel. Where one mode is both faster and cheaper then the choice is straightforward. However, where one mode is faster and one is cheaper, the analysis of the choices made can reveal the tradeoff function between time and money. For any particular recreation area, a person who wants to spend no time and no money would not visit, a person who spends time but no money would walk, and a person who is willing to spend money but little time would drive.

Given the problems with using some proportion of the wage rate, we used modal choice analysis to estimate a value for travel time. While this method would obviously be inappropriate for rural recreation areas such as national parks, it may be suitable for major urban recreation sites where a significant number of visits are made using transport modes which carry different time and money costs. The analysis assumes that (i) visitors can actually make a tradeoff between travel time and travel cost and (ii) there is no positive utility associated with any of the transport modes used. Assumption (i) will not hold, for example, for those people who do not have ready access to a car. Assumption (ii) will not hold for people who enjoy walking or riding to the park. Failure of assumption (ii), which is likely to be the more problematic of the two, would result in overestimation of the value of time saved. This may well be the case for the estimate used in our TC model. Larson's scarcity value of time and the modal choice estimate of the value of time saved are compared to provide a rough check of the plausibility of our measure.

Methodology

Two surveys were employed in this study: an on-site survey using TC questions to provide estimates for use value, and an off-site mail survey to provide CV estimates of any nonuse values ascribed by nonusers of the park. Details of survey design, respondent sample and mailout procedures are given in Tracy (1993).

On-site Survey

The on-site survey was conducted in June 1993. People were approached at random in various parts of the park and asked whether they would be willing to fill out the survey instrument. If so, they were given the survey and the option of either depositing the completed survey in one of the collection boxes which had been placed around the park, or mailing it back in the prepaid envelope provided. This method was chosen in preference to personal interviews, since a pre-test showed a reluctance on the part of some respondents to answer the demographic questions, and demonstrated the need for respondents to have time to reflect on some of the questions. The pre-test also allowed refinement of the survey format and wording of the questions. The principles outlined in Dillman's (1978) total design method were used as much as possible, although as this survey was on-site there was no possibility of the usual follow-up mailings.

Visitors were asked how they had travelled to the park, and were given several alternatives, including car, bicycle, public transport or walking. The size of car and number of travelling companions were ascertained from motor vehicle visitors, so that costs of car travel could be computed using standard car operating costs (NRMA, 1992).

The value of time was incorporated into the TC model using modal choice analysis. The probability that an individual will choose a particular mode of transport is a function of both the time and money costs involved. The choice between modes 1 and 2, where mode 1 is more expensive but faster than mode 2, will depend on a tradeoff between the time saved by using mode 1 and the cost saved by using mode 2. Following (Hensher & Hotchkiss, 1975), this choice can be modeled using logit analysis:

$$\ln[p_1/(1 - p_1)] = a_0 + a_1(t_1 - t_2) + a_2(c_2 - c_1), \qquad (2)$$

where p_1 is the proportion of visitors travelling by mode 1, t_1 is the travel time by mode 1, t_2 is travel time by walking or other transport mode, c_1 is the cost of travelling by mode 1, c_2 is the cost of travelling by mode 2, and a_0, a_1 and a_2 are parameters to be estimated. The average value of time saved is the change in the cost of mode 1 required to offset a unit change in travel time, where the probability of choosing mode 1 remains unchanged—that is, the value of $d(c_2 - c_1)/d(t_1 - t_2)$ when $dy = 0$. Since $d\{\ln[p_1/(1 - p_1)]\} = \{ [a_0 + a_1(t_1 - t_2) + a_2(c_2 - c_1)]/(t_1 - t_2)\}d(t_1 - t_2) + \{ [a_0 + a_1(t_1 - t_2) + a_2(c_2 - c_1)]/(c_2 - c_1)\}d(c_2 - c_1) = 0$, substituting for / $(t_1 - t_2)$ and / $(c_2 - c_1)$ gives $a_1[d(t_1 - t_2)] + a_2[d(c_2 - c_1)] = 0$, so that $d(c_2 - c_1)/d(t_1 - t_2) = -a_1/a_2$. Hence the average value of time saved is given by a_1/a_2.

The coefficients in the model were determined by logistic regression using maximum likelihood estimation, with the likelihood of a visitor travelling by car as the dependent variable and the differences between travel times and travel costs for the various modes as the independent variables. The significance of each coefficient was assessed using the t-statistic. The significance of the model as a whole was assessed using a likelihood ratio test which compared the sum of the unrestricted log likelihoods with the restricted log likelihood where a_1 and a_2 are set to zero. A χ^2 statistic is calculated for two degrees of freedom from $\chi^2 = -2[\ln(Lu)-\ln(Lr)]$, where ln(Lu) is the unrestricted log likelihood, and ln(Lr) is the restricted log likelihood.

Zones for the ZTC were created on the basis of 49 postcode clusters containing approximately equal populations, and the number of visits from each zone calculated. The relationship between number of visits and travel cost (including the value of time) was estimated using least squares regression. The area under an imputed demand curve constructed by assessing the effects additions to travel cost would have on visitor numbers was used as a measure of consumer surplus. An ITC semilog model was also estimated using travel cost and a range of demographic and behavioral variables.

Off-site CV

The off-site survey was conducted in July 1993 and was primarily designed to measure any nonuse economic values associated with Centennial Park. The survey instruments were mailed to a random sample of 250 Sydney residents following the total design method of Dillman (1978). Unfortunately, the political sensitivity of asking people to pay for their use of the park meant that we could not use a strong contingent scenario—for example, one that indicated the park would be sold-off as a housing development unless people offered a sufficiently high WTP to keep it in its current condition. Instead, we asked respondents to suppose that the government was no longer providing funding for the park through taxes, but was establishing a trust fund to pay for management of the park. Furthermore, we used an open ended elicitation format rather than the technically superior dichotomous choice referendum, because the latter would have required an impractically large sample size given the constraints imposed by the project budget.

Questions to users of the parks related to previous visits, and length of stay. Other questions related to both users and nonusers, and included the numbers of alternative recreation sites visited, whether or not the person would donate to a trust fund for the park, and reasons why they would or wouldn't donate. Demographic variables were included to determine whether the sample was representative of the population. Respondents who did not have a WTP were also asked for reasons for this choice, and those respondents offering explanations that amounted to a rejection of the contingent scenario or the hypothetical market were excluded from the WTP analysis.

Results

On-site TC

From a total of 1155 survey instruments delivered, 598 usable responses were obtained—a response rate of 52%. For the modal choice analysis of travel time, car travel was the most expensive, but generally the quickest, except for a few visitors who lived immediately adjacent to the park, for whom walking was quicker. Walking, riding a bicycle or riding a horse were the cheapest, with an assumed zero cost. Going by bus was generally cheaper than by car, but took longer. Most people travelled to the park by car (72%), with 20% choosing to walk, 5% arriving by bus, 3% by bicycle and 1% by horse. Logistic regression yielded values of a_1 and a_2 in equation (2) of 0.047 ($t = -5.12$, $p < 0.0001$) and 0.514 ($t = 2.83$, $p = 0.005$) respectively. The χ^2 test indicated that the regression model was significant at $p < 0.001$. The estimated average value of travel time (a_1/a_2) was \$5.40 per hour with a variance of 0.36. From respondents' income, and assuming a typical working week of 38 hours, this value of travel time saved is on average 29% of the wage rate, which is similar to the 33% rate commonly used in commuter studies. From equation (1), the opportunity cost of travel time value was estimated to be \$4.20 per hour. While hardly conclusive, these comparisons suggest that \$5.40 is at least a reasonable figure to use for the value of travel time in a TC model.

After testing several functional forms, a 49 zone TC model incorporating the \$5.40 per hour value of time was estimated through nonlinear least squares regression:

$$Va/Pa = C(1)[(COST)C(2)], \qquad (3)$$

where Va is the number of visitors from zone a, Pa is the population of zone a, COST is the travel cost (including the time cost estimate) from zone a, and C(1) and C(2) are estimated coefficients. Since we are using a nonlinear functional form, truncation is required to artificially drive visits to zero and thus allow estimation of the second stage demand curve. In this study twenty visits was used as the cut-off point, which given total annual visits of 3.1 million, should not have a significant effect on the calculated consumer surplus. The estimated coefficients for the model were C(1) = 304.06, C(2) = −2.90, with $R^2 = 0.98$ and both coefficients significant at $p < 0.001$. Construction of a second-stage demand curve from this model gave an estimate of Centennial Park's annual use value of \$23 million, with an average value per visit of \$7.42. The semilog ITC model ($R^2 = 0.37$), in which the coefficient of the cost variable was significant at $p < 0.001$, gave an annual use value of \$33 million, and an average value per visit of of \$10.56.

Off-site CV

From a total of 250 surveys mailed out to potential respondents, 105 usable responses were obtained which, discounting the high number of 50 undeliverables, corresponds to an effective response rate of 52.5%. Although the demographic characteristics of the sample population differed significantly from that of Sydney as a whole, linear multiple regression analysis indicated that none of the demographic variables had a significant influence on WTP. Respondents who indicated that they had visited Centennial Park at least once (and hence can be considered users of the park) comprised 82% of the sample.

Thirteen "no" bids were identified as protests against the notion of the public making donations for parks, and were eliminated from the WTP analysis. Value was then determined by aggregating the average value per household, to the number of households in the population (1,188,685). The average bid per household was $25.81, giving a total WTP for the population of $31 million per annum. Obviously the entire WTP of the 18% of nonusers (average of $12.10 per household) must be due to nonuse or future use motivations. Users may also have a component of their WTP related to nonuse motivations, but this component is not separable from use value, at least in this study. Aggregate nonuse economic value of Centennial Park is thus at least $2.6 million per annum, and probably more given that users have some nonuse component in their total valuation. If we assume commensurability between the CV and ZTC measures, the total nonuse value is simply the difference between the two estimates: $8 million per annum. This suggests that in aggregate users have approximately twice the nonuse value of nonusers, though given the much higher proportion of users, the per-person nonuse value is higher for nonusers, with users having an average nonuse value of $5.54 per household.

Discussion

Inclusion of a value for travel time via modal choice analysis allowed for a realistic account of travel costs (both time and money) to be included in the TC model. Inclusion of time added an extra $6 million per annum to the benefit estimate derived from a TC which considered only the monetary costs of travel. While the value of time was significant, the analysis indicated that, for the TC model used in this survey, monetary cost accounted for the greater proportion of total benefit. This is contrary to the examples cited by Bockstael, McConnell & Strand (1992) where recreationists considered that time was a more significant factor than money in the choice of recreation.

However, this time-inclusive model still neglects what is probably a significant value component. Individuals who live near a park receive both onsite and external benefits. Urban parks are not isolated from the population, to be used only on weekends or holidays, but often form part of the daily lives of residents. Therefore some of the value of a park may be caught up in housing prices, resulting in underestimation of value through TC (Parsons, 1991; Ulrich & Addoms, 1981). The TC demand curve suffers because it makes no allowance for the people who choose their residential location in part because of its proximity to a major recreation resource or natural amenity. If people make a decision about where to live based on location of a recreation area, they are effectively choosing the price they will face for travel to that site, so that choice of home location may be an important part of the recreational demand. Analysis of the housing market would be useful to determine what component of local property values may be due to Centennial Park, which is surrounded by the high-value residential suburbs of Paddington, Randwick, Bondi Junction and Woollahra. Hedonic pricing which, in this application, would involve development of multiple regression models to assess the (presumably positive) effects of Centennial Park on these suburbs' property values, could be used to overcome this problem. However, given that property value may include a use value premium, the Hedonic estimate would probably encompass some of the use value measured by TC. To simply add the two measures would involve double-counting.

In the CV survey, respondents were told that the scenario was hypothetical, which may have induced some strategic behaviour and increased the number of protests. In addition the CV scenario did not suggest that the park would be sold or allowed to deteriorate if people would not make a donation. That is, the contingent market created in the survey did not provide the respondent with even a hypothetical incentive to reveal his or her true WTP. The unfortunately weak scenario and emphasis on its hypothetical nature were unavoidable given the political sensitivity of the issue; neither the managing authority nor the government could risk the misunderstanding and controversy that would have been created by a more incentive compatible contingent market, i.e. one that would have more forcefully encouraged the respondent to reveal his or her true WTP. Also, the open-ended elicitation format is less than ideal. The dichotomous choice referendum format (in which respondents are asked to answer yes or no to a specified dollar amount) is generally regarded as the superior elicitation method, primarily because it places less demands on the respondent and is likely to be a more familiar mode of making choices in relation to public goods. Hoehn and Randall (1987) also argued that dichotomous choice formats give a better estimate of maximum WTP, since they are not as subject to strategic underbidding as open ended formats. This conclusion is supported by Kealy and Turner (1993) who show that open ended formats typically give lower welfare estimates than dichotomous choice formats. In combination, these concerns indicate that the CV benefit of $31 million is probably an underestimate.

Conclusion

Urban parks are a very important part of many individual's daily lives. In spite of this, there has been little research into the nonmarket economic valuation of these resources. This study has investigated the use two techniques for the economic valuation of urban parks. While both the TC and CV methods suffered problems of probable underestimation, the benefit measures obtained are nonetheless useful guides as to the nonmarket economic contribution made by Centennial Park. In any case, the annual nonmarket value to the users of the Centennial Park of between $23 million and $33 million, together with a nonuse value of at least $2.6 million, so far outweigh the current expenditure on Centennial Park and two smaller adjacent parks of approximately $6 million per annum, that the investment of public money into the management and maintenance of the park is clearly justified, at least on economic grounds.

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