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Estimating Tourists' Economic Values of Public Beach Access Points

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ABSTRACT

As the population and per capita income of the United States continues to increase, opportunities for individuals to participate in travel and tourism related activities are likely to multiply as well. Coastal tourism destinations anticipate this increase in travel will result in the need to retain and provide additional public access to coastal resources. Pogue and Lee (1999) indicate that tourism and recreational needs assessments are essential to determining how to meet the growing demand for public beach access. Determining the amount of scarce public funds to be spent on maintaining and acquiring public access locations to coastal resources is dependent upon economic benefits measured by individuals' willingness to pay (WTP) for these resources. To estimate beach visitors' economic value (or consumer surplus) from consuming services of additional provision of beach access points, double-bounded (DB) CVM questions were used to discover the amount visitors were willing to pay per day in excess of their actual trip costs associated with their beach experience. When the values are understood as net benefits accrued from their beach experiences, in general, average visitors are willing to pay \$8.3 more above the current cost. Total net WTP at the population level was \$58.3 million from development and maintenance of additional beach access points with parking spaces and other preferred facilities. As the new acquisition of beach access points is high-priced, the precise estimation of visitors' benefits accrued from provision of beach access points is indispensable to more effective management decisions and policies.

INTRODUCTION

More than 75% of summer travelers intend to visit beaches, making beach visitation one of the most popular coastal tourism and recreational activities (Kline, Osleeb, & Viola, 2004). As the population and per capita income of the United States continues to increase, opportunities for individuals to participate in travel and tourism related activities are likely to multiply as well. Coastal tourism destinations anticipate this increase in travel will result in the need to retain and provide additional public access to coastal resources. However, despite various management efforts, such as the Coastal Zone Management Act, maintenance and provision of public access is not an easy task due to the limited capacity of coastal lands and conflicting interests with private property owners (NOAA OCRM report, 1999). Consequently, there have been intensifying pressures on public agencies to provide an adequate level of tourism and recreational opportunities for the region.

According to Freeman (1995), there have been a deficient number of studies which provide estimates of the value of access to coastal resources. Pogue and Lee (1999) indicate that tourism and recreational needs assessments are essential to determining how to meet the growing

demand for public beach access. Considering the potential increase in tourists' demand for access to coastal resources, estimating the economic value individuals place on public beach access is vital in developing long-term management policies.

Determining the amount of scarce public funds to be spent on maintaining and acquiring public access locations to coastal resources is dependent upon economic benefits measured by individuals' willingness to pay (WTP) for these resources. Approaches utilizing non-market valuation models are useful for approximating market-equivalent values for goods and services like beach access (and related facilities and services) not customarily traded in the marketplace (Loomis & Walsh, 1997). Supplying decision-makers with an economic value allows more realistic comparisons between policies in the evaluation process. Thus, the purpose of this study is to determine the economic value South Carolina beach tourists place on beach access using a nonmarket valuation tool.

METHODS

The sampling frame for this study included South Carolina beach visitors. Because it was impossible to identify the population of South Carolina beach visitors, a convenience sampling strategy was used by intercepting beach visitors on site. During a two month period (March – April 2006), multiple trips were made to popular South Carolina beach destinations to collect names and addresses for a follow up mail survey. The trips resulted in 493 participants.

In the months of April and May 2006, a mail questionnaire was sent to these visitors asking about diverse aspects of their beach trips. All mail questionnaires including three mailings and a postcard were sent by first-class mail using a modified Dillman Total Design Survey Method (Dillman, 1978). The mail questionnaire included questions such as visitors' trip experiences at the beach, satisfaction with their beach trip, attitudes toward and preferences for beach management, and trip expenditures. To estimate beach visitors' economic value (or consumer surplus) from consuming services of additional provision of beach access points, a contingent valuation method (CVM) component was incorporated into the questionnaire. To increase efficiency over single-bounded CVM models (Haab & McConnell, 2003), double-bounded (DB) CVM questions were used to discover the amount visitors were willing to pay per day in excess of their actual trip costs associated with their beach experience. An initial closed-ended CVM question was asked to reveal respondents' preference by answering "Yes" or "No" to each bid value and, then, a follow-up question for more information was presented with a new bid value which was lower if the initial response was "No" or higher if the response was "Yes". The ten initial bid values ranging from \$1 to \$40 were pre-selected based on a review of related literature as well as pretests. The second bid values ranging from \$0.5 to \$26 were followed if the answer to the first question was "Yes" and those from \$2 to \$65 were inserted if the answer to the first one was "No".

ANALYSIS

Using an indirect utility framework, utility consisting of a systematic (i.e., the effect of observed influences on the utility) and a random component (i.e., the effect of unobserved influences on the utility) can be represented as: $U = V(X) + \varepsilon$

where V is the deterministic component of utility, ε is unobservable error component of utility, X is a vector of important explanatory factors. A visitor will pay the suggested bid amount (i.e., answer YES) only if the utility with the CVM program implemented is greater than the status

quo utility. While more detailed descriptions about the model are found in Haab and McConnell (2003), succinctly, the generic model for the DB-CVM is: $WTP_i = X_i\beta + \varepsilon_i$

where i indicates the first and second answers and β is a vector of coefficients to be estimated.

Once the equation is estimated using a bivariate probit model normally, an expected value of net WTP can be calculated by estimating the integral under the probability of accepting the bid curve over a range between zero and the maximum bid amount (Hanemann, 1984; Sellar, Chavas, & Stoll, 1986).

In the model, a set of explanatory variables (i.e., X) of individual characteristics should be taken into account to “gain information on the validity and reliability of the contingent valuation method, and to extrapolate sample responses to more general populations” (Haab & McConnell, 2003: p.23). Consequently, several explanatory variables were included: proposed bid amount (BID), annual household income (INCOME), level of education (EDU), a visitor’s age (AGE), importance of the value for the parking fee (VPARK), and level of preference for beach management (INTENT).

FINDINGS

A total of 200 replies were received for a gross response rate of 40.6%. After deleting non-deliverable addresses (43), the effective response rate was 44.4%. Two respondents were deleted because one indicated they were under 18 years of age and another a local resident. Additionally, 31 returns were deleted due to their lack of response to survey questions used in the analyses. Therefore, results are based on a sample size of 155.

Most beach visitors (82%) had attended some college or technical school and approximately 60% of the respondents had a household income of \$60,000 and over. In addition, when asked to rate the importance of the value for the parking fee, most visitors (88%) rated this item as moderately important and above. Finally, more than a half of visitors agreed that they would visit the beach more with better maintenance and facilities of the beach destination.

The results of bivariate probit model are presented in Table 1. All of the explanatory variables besides EDU and AGE had expected signs although some coefficient estimates were not significant. As expected, the highly significant and negative coefficient of the BID variable indicates that visitors were less willing to pay (i.e., to respond “YES”) as the proposed bid amount increased. In addition, the significant positive coefficients on INCOME and INTENT mean that visitors who earned higher household income and who wanted to visit the beach sites with better maintenance and facilities and more beach activities were more likely to respond “YES” to the contingent valuation question. Likewise, the negative coefficient of VPARK indicates visitors were less willing to respond “YES” as they place more importance on the value for the parking fees.

To compute the values of net WTP, we numerically approximated the estimated equations over a range between zero and the maximum bid amount of \$65. Estimated net WTP (or consumer surplus) over trip expenditures is \$8.3. Thus, when the values are understood as net benefits accrued from their beach experiences, in general, average visitors are willing to pay \$8.3 more above the current cost (i.e., benefit gain worth \$8.3). Utilizing estimates of the total number of out-of-county visitors to South Carolina beaches (Oh, Dixon, & Draper, 2006), total net WTP at the population level was calculated. Multiplied by net WTP of \$8.3, total out-of-county visitors of 7,028,275 gained the economic benefits of \$58.3 million from development and maintenance of additional beach access points with parking spaces and other preferred facilities.

Table 1. Results of Bivariate Probit Model.

Variable	Coefficient	Std. Err	Z
Intercept	0.5763	0.749	0.77
Bid	-0.0795**	0.015	-5.47
INCOME	0.0807*	0.042	1.91
EDU	-0.0529	0.009	-1.07
AGE	-0.0097	0.117	-0.45
VPARK	-0.2424**	0.109	-2.22
INTENT	0.1014**	0.044	2.31
Log-Likelihood	-169.7		

Significance level of .10, .05 are represented by *, and **, respectively.

CONCLUSIONS

Pogue and Lee (1999) recognize coastal counties as “among the most densely populated and rapidly growing counties in the nation” (p. 220). With dense population and growth comes development that inhibits public access to the coast, including access for tourists. Intensified concerns about beach access and amenity requirements for an increasing number of visitors should prompt management consideration of how to provide adequate and sufficient access and amenities for each beach destination. Nevertheless, to the researchers’ knowledge, no previous work examined net WTP reported by beach visitors revealing their preferences for provision of additional beach access points and other beach facilities. A contingent valuation method used here is a useful means to provide economic benefits obtained from recreational services like beach access for points not traded in the typical marketplace.

The coastal zone management program for each coastal state should include a comprehensive planning process for public access to beaches (Brower & Dreyfoos, 1979). Supplying decision-makers with an economic value allows more realistic comparisons between policies in the evaluation process. In particular, as the new acquisition of beach access points is high-priced, the precise estimation of visitors’ benefits accrued from provision of beach access points is indispensable to more effective management decisions and policies. From a management perspective, this study demonstrates that the beach visitors are willing to pay a sizeable amount to obtain improved services of beach access points with parking spaces and other facilities. Thus, the integration effort of economic value estimated can provide a baseline for evaluating future policies or management options, such as to what extent beach access points and amenity requirements should be provided for tourists.

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